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I. INTRODUCTION

A. History

On November 7, 1996, the U.S. Environmental Protection Agency (EPA or the Agency) published the first proposed update to the Comprehensive Procurement Guideline (CPG) and a companion draft Recovered Materials Advisory Notice (RMAN). This update, hereafter referred to as the proposed CPG II, proposed to designate 13 new items that are or can be made with recovered materials (see the *Federal Register* (FR) 61 FR 57747, November 7, 1996), as follows:

- Construction Products:

  —Shower and Restroom Dividers
  —Latex Paint

- Transportation Products:

  —Parking Stops
  —Channelizers
  —Delineators
  —Flexible Delineators

- Park and Recreation Products:

  —Snow Fencing

- Landscaping Products:

  —Garden and Soaker Hoses
  —Lawn and Garden Edging

- Non-Paper Office Products:

  —Printer Ribbons
  —Plastic Envelopes
  —Ink Jet Cartridges

- Miscellaneous Products:

  —Pallets

The accompanying draft RMAN II recommended procurement practices for purchasing the 13 items proposed for designation, including recovered materials content levels (see 61 FR

57760, November 7, 1996). Copies of both of these *Federal Register* notices are located in the Resource Conservation and Recovery Act (RCRA) Docket F-96-CP2P-FFFFF.

The final CPG II designates 12 of the 13 items and the Final RMAN II recommends recovered materials content levels for these newly designated items. The recommendations are organized into product categories, which correspond with the categories used in CPG II: construction products, transportation products, park and recreation products, landscaping products, non-paper office products, and miscellaneous products. The 12 items designated in the final CPG II include:

- Construction Products:

  —Shower and Restroom Dividers/Partitions
  —Reprocessed and Consolidated Latex Paint for Specific Uses

- Transportation Products:

  —Parking Stops
  —Channelizers
  —Delineators
  —Flexible Delineators

- Park and Recreation Products:

  —Plastic Fencing

- Landscaping Products:

  —Garden and Soaker Hoses
  —Lawn and Garden Edging

- Non-Paper Office Products:

  —Printer Ribbons
  —Plastic Envelopes

- Miscellaneous Products:

  —Pallets

B. Contents of This Background Document

Previously, separate background documents were developed to accompany both the CPG

and the RMAN *Federal Register* notices (See CPG II Supporting Analyses and RMAN II Supporting Analyses in the RCRA Docket). In an effort to alleviate redundancy, this document integrates components of both background documents to provide a comprehensive summary of all the supporting analyses used by the Agency to issue the Final CPG II and the Final RMAN II. This document, hereafter referred to as the Final CPG II/RMAN II Background Document, explains EPA's overall objectives, the process for designating procurement items, and the methodology used in recommending recovered materials content levels for items designated in the Final CPG II. In addition, the Final CPG II/RMAN II Background Document lists the recommended procurement practices for designated items, which are also included in the Final RMAN II, and provides the Agency's detailed response to public comments received on the proposed CPG II, the draft RMAN II *Federal Register* notice, the CPG II Supporting Analyses and the draft RMAN II Supporting Analyses. To avoid confusion with the original 1995 CPG and RMAN and the proposed CPG II and draft RMAN II, the Final CPG II and the Final RMAN II will be referred to as the CPG II and the RMAN II, respectively. Appendices I-V are referenced in this document. For the convenience of the reader, they are attached as a separate document.

For the reader's convenience, Table 1 lists acronyms referenced throughout this document.

Table 1

Acronym List

Acronym	Term
ACAA	American Coal Ash Association
AIA	American Institute of Architects
AIM	Architectural and Industrial Maintenance
ANSI	American National Standards Institute
APC	American Plastics Council
APP	Affirmative Procurement Program
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
BOF	Basic Oxygen Furnace
C&D	Construction and Demolition (debris)
CAAC	Civilian Agency Acquisition Council
CalPoly	California Polytechnic University
CALTRANS	California Department of Transportation

Acronym	Term
CFR	Code of Federal Regulations
CID	Commercial Item Description
CPG	Comprehensive Procurement Guideline
DARC	Defense Acquisition Regulations Council
DDSP	Defense Depot Susquehanna, Pennsylvania
DLA	Defense Logistics Agency
EPA	U.S. Environmental Protection Agency
FAR	Federal Acquisition Regulation
FASA	Federal Acquisition Streamlining Act
FEE	Federal Environmental Executive
FHWA	Federal Highway Administration
FR	Federal Register
GGBF	Ground Granulated Blast Furnace (Slag)
GMA	Grocery Manufacturers of America
GPO	U.S. Government Printing Office
GSA	U.S. General Services Administration
HDPE	High-Density Polyethylene
HHW	Household Hazardous Waste
HUD	Department of Housing and Urban Development
LDPE	Low-Density Polyethylene
LLDPE	Linear Low-Density Polyethylene
LOGSA PSCC	U.S. Army Logistics Support Activity Packaging, Storage, and Containerization Center
MAS	Multiple Award Schedule
MSW	Municipal Solid Waste
NPCA	National Paint and Coatings Association
NWPCA	National Wooden Pallet and Container Association
OCC	Old Corrugated Containers

Acronym	Term
OEM	Original Equipment Manufacturer
OFPP	Office of Federal Procurement Policy
OMB	Office of Management and Budget
OPPT	(EPA) Office of Pollution Prevention and Toxics
PE	Polyethylene
PET	Polyethylene Terephthalate
PP	Polypropylene
ppm	Parts per Million
PRA	Paperwork Reduction Act of 1995
PS	Polystyrene
PSI	Pounds per Square Inch
PVC	Polyvinyl Chloride
RCRA	Resource Conservation and Recovery Act of 1976
RFCI	Resilient Floor Covering Institute
RMAN	Recovered Materials Advisory Notice
RPG	Recycled Products Guide
SRI	Steel Recycling Institute
USACERL	U.S. Army Construction Engineering Research Laboratories
U.S.C	United States Code
USPS	U.S. Postal Service
USWAG	Utility Solid Waste Activities Group
UV	Ultraviolet
VOC	Volatile Organic Compound

C. Requirements

RCRA section 6002 and the Executive Order specify requirements for the procurement of products containing recovered materials. The requirements of RCRA section 6002 apply to "procuring agencies," as defined in RCRA section 1004(17); the Executive Order applies only to Federal "Executive agencies," as defined in Section 202 of the Executive Order.

Section 6002(e) of RCRA (or the Act) requires EPA to designate items that are or can be made with recovered materials and to recommend practices to assist procuring agencies in meeting their obligations with respect to the procurement of designated items under RCRA section 6002. After EPA designates an item, RCRA requires that each procuring agency, when purchasing a designated item, must purchase that item composed of the highest percentage of recovered materials practicable.

Executive Order 12873 (Executive Order) specifies the procedure for EPA to follow in implementing RCRA section 6002(e). Section 502 of the Executive Order directs EPA to designate items in the CPG and to recommend procurement practices for purchasing designated items, including recovered materials content levels, in a related RMAN. The Executive Order also directs EPA to update the CPG annually and to issue RMANs periodically to reflect changing market conditions.

The following Sections provide an overview of RCRA section 6002 and the Executive Order and explain the basis for designating specific products as procurement items subject to RCRA section 6002. Appendix I provides a more detailed explanation of the provisions and requirements of RCRA section 6002. Appendix II provides additional details on the Executive Order, and Appendix III briefly discusses additional federal procurement policies and requirements.

1. RCRA Section 6002

RCRA section 6002 requires EPA to designate items that are or can be made with recovered materials and to recommend practices to assist procuring agencies in purchasing the designated items. Once an item is designated by EPA, procuring agencies that use appropriated federal funds to purchase the item are required to purchase it containing the highest percentage of recovered materials practicable (and in the case of paper, the highest percentage of postconsumer recovered materials), taking into consideration the limitations set forth in section 6002(c)(1)(A) through (C) (i.e., competition, price, availability, and performance). The requirement applies when the purchase price of the item exceeds $10,000 or when the total cost of such items, or of functionally equivalent items, purchased during the preceding fiscal year was $10,000 or more.

RCRA section 6002(d)(2) requires that, within 1 year after EPA designates an item, federal agencies revise their specifications to require the use of recovered materials to the maximum extent possible without jeopardizing the intended end-use of the item. Section 6002(d)(1) further requires federal agencies responsible for drafting or reviewing specifications to review all of their product specifications to eliminate provisions prohibiting the use of recovered materials and requirements specifying the exclusive use of virgin materials. To comply with section 6002(d)(2), the revision process for items designated in CPG II should be completed within 1 year after the CPG II is published in the *Federal Register*.

Once EPA designates an item, responsibility for complying with RCRA section 6002 rests

with the procuring agencies. For each item designated by EPA, RCRA section 6002(i) requires each procuring agency to develop an affirmative procurement program (APP), which sets forth the agency's policies and procedures for implementing the requirements of RCRA section 6002. The APP must ensure that the agency purchases items composed of recovered materials to the maximum extent practicable and that these purchases are made consistent with applicable provisions of Federal procurement law. In accordance with RCRA section 6002(i), the APP must contain at least four elements:

1. A recovered materials preference program.

2. An agency promotion program.

3. A program for requiring vendors to estimate, certify, and reasonably verify the recovered materials content of their products.

4. A program to monitor and annually review the effectiveness of the APP.

Appendix IV provides detailed information on APPs.

Finally, RCRA section 6002(g) requires the Office of Federal Procurement Policy (OFPP) to implement the requirements of RCRA section 6002 and to coordinate this policy with other Federal procurement policies in order to maximize the use of recovered materials. (See Appendix III for more information.) RCRA further requires OFPP to report to Congress every two years on actions taken by federal agencies to implement such policy.

2. Executive Order 12873

Executive Order 12873, *Federal Acquisition, Recycling, and Waste Prevention*, was signed by President Clinton on October 20, 1993. Section 502 of the Executive Order establishes a two-part process for EPA to use when developing and issuing the procurement guidelines for products containing recovered materials, as required by RCRA section 6002(e). The first part of the process, issuing the CPG, involves designating items that are or can be made with recovered materials. The CPG is developed using formal notice-and-comment rulemaking procedures and is codified in the Code of Federal Regulations (CFR) at 40 CFR Part 247. The Executive Order requires EPA to update the CPG annually.

The second part of the process is the publication of the RMAN, which provides recommendations to procuring agencies on purchasing the items designated in the CPG. The Executive Order directs EPA to publish the RMAN in the *Federal Register* for public comment. The RMAN, however, is not codified in the CFR, because the recommendations are guidance. RMANs are issued periodically to reflect changes in market conditions and provide procurement recommendations for newly designated items.

Appendix II provides additional information on the provisions and requirements of Executive Order 12873, including requirements for procuring agencies to comply with EPA's guidelines.

II. ITEM DESIGNATIONS

A. Criteria for Selecting Items for Designation

While not limiting consideration to these criteria, RCRA section 6002(e) requires EPA to consider the following when determining which items it will designate:

1. Availability of the item;

2. Potential impact on the solid waste stream of item procurement;

3. Economic and technological feasibility of producing the item; and

4. Other uses for the recovered materials used to produce the item.

EPA also consulted with federal procurement and requirement officials to identify other criteria to consider when selecting items for designation. Based on these discussions, the Agency concluded that the limitations set forth in RCRA section 6002(c) should also be factored into its selection decisions. This provision requires each procuring agency to procure the item composed of the highest percentage of recovered materials practicable, while maintaining a satisfactory level of competition. A procuring agency, however, may decide not to procure an EPA-designated item containing recovered materials if it determines: (1) the item is not reasonably available within a reasonable period of time; (2) the item fails to meet the performance standards set forth in the agency's specification; or (3) the item is available only at an unreasonable price. EPA recognized that these limitations could restrict procuring agencies from purchasing EPA-designated items with recovered materials content, and, thereby, could limit the potential impact of an individual item designation. (The limitations of section 6002(c) also effectively describe the circumstances in which a designated item is “available” for purposes of the statute.) For this reason, EPA also takes into account the limitations cited in RCRA section 6002(c) in its selection of items for designation.

The Agency developed the following criteria for use in selecting items for designation: use of materials found in solid waste, economic and technological feasibility and performance, impact of government procurement, availability and competition, and other uses for recovered materials. The items designated in the CPG II have all been evaluated with respect to the EPA's criteria. Details of these evaluations are discussed in Sections VIII through XIII of this document.

1. Use of Materials Found in Solid Waste

All items designated in the CPG II are manufactured with materials recovered or diverted from the solid waste stream. These include both materials recovered or diverted from municipal solid waste (MSW) and materials recovered or diverted from other solid waste streams, such as

construction and demolition (C&D) debris and other non-hazardous industrial waste streams. Once recovered or diverted, these materials are reclaimed and refined, disassembled and remanufactured, or separated and processed for use as feedstock to manufacture a new product. Appendix V provides an overview of the materials in MSW in the United States and provides a more detailed explanation of the materials used in the products designated in the CPG II.

The potential impact that procuring agencies may have on the solid waste stream by procuring EPA-designated items varies depending on the sophistication of the process used to recover or refine the materials and on the recovered materials content of the final product. Additionally, although designating a single item may not have a significant impact on the amount of solid waste recovered or diverted from the waste stream, EPA believes that designating several items made from the same recovered material can lead to the diversion of substantial quantities of that material from the waste stream.

Information on the recovered materials used to produce items designated by EPA is presented in subsection 3(a), "Use of Materials in Solid Waste," within the individual item designation discussions in Sections VIII through XIII of this document.

2. Economic and Technological Feasibility and Performance

Before selecting an item for designation, EPA determines that, based on its market research, it is economically and technologically feasible to use recovered materials to produce the item. EPA uses several indicators in making this determination. The availability of the item in the marketplace and procurement of the item by Federal and/or other procuring agencies are primary indicators that it is economically and technologically feasible to manufacture the product with recovered materials content. Other indicators include the ability of the item to meet performance specifications, the general acceptance of the item by consumers and purchasers, and the use of recovered feedstock by manufacturers.

RCRA directs EPA to "designate items that are or can be produced with recovered materials and whose procurement by procuring agencies will carry out the objectives of RCRA section 6002." This being the case, there may be instances where a particular item is not currently made with recovered materials content, but a similar item is. In those cases where the Agency believes that there are no technical reasons that prevent an item from being manufactured with recovered materials, and there is a demonstrated use of recovered materials in a similar item, EPA also may consider designation of the item that currently does not contain recovered materials.

Prior to selecting an item for designation, EPA also considers the ability of the item to meet the standards, specifications, or commercial item descriptions set forth by federal agencies or national standard-setting organizations.

Information on the economic and technological feasibility of producing items designated by EPA, including the availability of the item and the number of manufacturers that produce the

item, the ability of the item to meet federal or national specifications, the recovered materials content levels used by manufacturers to produce the item, and other information relevant to the economic and technical feasibility of producing and using the item, is discussed in subsections B.3.b, "Technically Proven Uses," in the individual item designation discussions in Sections VIII through XIII of this document.

3. Impact of Government Procurement

The impact of government procurement of products containing recovered materials is a combination of: (1) direct purchases by federal agencies, (2) purchases made by state and local agencies using federal monies, and (3) purchases made by contractors to these government agencies. When considering items for designation, EPA examines whether government agencies and their contractors purchase the items.

Government procurement also has an impact that extends far beyond the federal, state, and local levels. As noted in RCRA and the Executive Order, the Federal government often serves as a model for private and other public institutions. Because of this secondary effect, EPA includes items that are not unique to or primarily used by government agencies. Many of the items that EPA selects for designation are selected because they have broad application in both the government and private sectors.

Information on the potential impact of government procurement for each new item designated in the CPG II is presented in subsections B.3.c., "Impact of Government Procurement," in the individual item designation discussions in Sections VIII through XIII of this document.

4. Availability and Competition

The items EPA selects for designation are available from national, regional, or local sources. The relative availability of an item influences the ability of a procuring agency to secure an adequate level of competition when procuring it. In the event that a satisfactory level of competition is unattainable, a procuring agency may elect to waive the requirement to purchase an EPA-designated item based on the limitations listed in RCRA section 6002(c).

Information on the availability of each item EPA has designated, including the number of manufacturers that produce the item, is presented in subsections B.3.b., "Technically Proven Uses," in the individual item designation discussions in Sections VIII through XIII of this document.

5.Other Uses for Recovered Materials

In selecting items for designation, EPA also considers the following: (1) the possibility of one recovered material displacing another recovered material as feedstock, thereby resulting in no

net reduction in materials requiring disposal; (2) the diversion of recovered materials from one product to another, possibly creating shortages in feedstocks for one or both products; and (3) the ability of manufacturers to obtain recovered materials in sufficient quantity to produce the item under consideration.

While other uses for recovered materials are a consideration, they are not a determining factor when selecting items for designation, because there is a need for additional markets for all recovered materials used to manufacture the designated items.

6. Other Considerations

EPA also considers price as a factor affecting the availability of an item. The price of products, whether made from virgin raw materials or recovered materials, is affected by many variables, including the availability and costs of material feedstocks, energy costs, labor costs, rate of return on capital, transportation charges, and the quantity of the item ordered. In addition, price may vary depending on whether the product is a common stock item or whether it requires a special order. Price also can be affected by the geographical location of the purchaser, because some products are not uniformly available throughout the United States. The best sources of current price information, therefore, are the manufacturers and vendors of the recycled products.

Relative prices of recycled products compared to prices of comparable virgin products also vary. In many cases, recycled products may be less expensive than their virgin counterparts. In other cases, virgin products may have lower prices than recycled products. Other factors also affect the price of virgin products. For example, temporary fluctuations in the overall economy can create oversupplies of virgin products, leading to a decrease in prices for these items. Therefore, while price is a consideration, in most cases, it is not a determining factor when selecting items for designation. It becomes a determining factor only when EPA obtains evidence that the relative price of an item with recovered materials content is significantly higher than the relative price of a comparable virgin product. For this reason, EPA did not address price in the individual item designation discussions in Sections VIII through XIII of this document.

EPA has also considered the feasibility of designating experimental or developmental products containing recovered materials. In the Agency's experience, such designations do not result in federal procurement of products containing recovered materials, because the items are not reasonably available, or only one source exists, leading to an unsatisfactory level of competition. For this reason, EPA does not intend to designate experimental or developmental products until it can be shown that they meet all of EPA's selection criteria, as described above. (For additional discussion of designating experimental and developmental products, see EPA's comments on General Accounting Office Report No. B-251080, *Solid Waste: Federal Program to Buy Products with Recovered Materials Proceeds Slowly*.)

B. Methodology for Selecting Items for Designation

EPA used the following process to determine which items to designate in the CPG II. First, EPA reviewed and updated information on items previously considered for designation but for which more information was needed. Next the Agency gathered information on new items from comments submitted in response to the initial CPG, which was proposed on April 20, 1994.

EPA also sought information from the public on potential items for inclusion in CPG II. On September 20, 1995, EPA published a FR notice requesting information on recycled content products (60 FR 48714). From December 1, 1995, through February 29, 1996, EPA accepted information from interested parties to consider when selecting items for designation, recommending recovered materials content levels for selected items, and revising recommendations for existing designated items. In addition to the 1995 request for information, EPA proposed the first update to the CPG (proposed CPG II), on November 7, 1996, requesting public comments on the addition of 13 new designated items. EPA accepted comments regarding the proposed CPG II items from November 7, 1996, to February 5, 1997.

In the September 20, 1995, notice, EPA requested information regarding the following seven areas:

1. Barriers to Purchasing Products Containing Recovered Materials:

What government specifications, standards, purchasing policies, or purchasing procedures preclude government agencies from purchasing the item containing recovered materials?

2. Use of Materials in Solid Waste:

Is the item made using a material that represents a significant portion of the solid waste stream or presents a solid waste disposal problem?

3. Economic and Technological Feasibility and Performance:

Does the item perform as well as necessary to meet a procuring agency's needs?

Are there government, American Society for Testing and Materials (ASTM), or other consensus standards or specifications that would enable a procuring agency to buy the item containing recovered materials?

Is the item available at a reasonable price considering normal market fluctuations?

4. Impact of Government Procurement:

Is the item purchased in appreciable quantities by the federal government or by state and local governments?

5. Availability and Competition:

Is the item available from an adequate number of sources to ensure competition?

Is the item generally available, rather than available in a limited market area?

6. Recovered Materials Content Levels:

What levels of recovered materials content are used in the product?

Is the recovered materials content postconsumer material? What percentage is postconsumer?

7. Sources of information:

What is the source of the information provided (e.g., industry studies, technical journals)?

Some of the items recommended for designation in the public comments are included as items designated in CPG II, as discussed below in Section II.D.

After EPA conducted additional product research, the information was presented to an interagency work group composed of individuals representing major procuring agencies. The work group members identified additional items to be considered for designation, based on their experiences developing product specifications, their knowledge of the marketplace, and their respective agencies' procurement practices. The work group reviewed the available information and prioritized the products into several categories: (1) products that EPA should propose for designation in the CPG II, (2) products that might be designated in the near future pending receipt of additional information and further review, and (3) products that EPA cannot propose for designation because of limited availability, unreasonable price, negligible effects on the waste stream, or the current inability of manufacturers to produce the items with recovered materials content.

The November 7, 1996, proposed CPG II, requested information or comment on the following topics:

- Proposal to designate 13 new items that can be made with recovered material:

—Should EPA designate the following items: shower and restroom dividers, latex paint, parking stops, channelizers, delineators, flexible delineators, plastic fencing, garden and

soaker hoses, lawn and garden edging, printer ribbons, ink jet cartridges, plastic envelopes, and pallets?

- Procurement limitations set forth in RCRA on competition, price, availability, and performance:

—Limitations describing the circumstances under which procurement of designated items is not required.

The proposed CPG II also provided clarification one previously designated item:

- Clarification of item designation:

—Clarification regarding procuring agencies' obligation to purchase floor tiles, structural fiberboard and laminated paperboard for specific applications.

Public comments submitted in response to the November 7, 1996, proposed designations and request for information are included in the RCRA Docket F-96-CP2P-FFFFF and are presented in Section 2 "Summary of Comments and Agency's Response," in the individual item designation discussions in Sections VIII through XIII of this document.

Items designated in the CPG II are described in detail in Sections VIII through XIII of this document. Those items that have been dropped from further designation at this time are discussed in Section XIV.B.

C. Broad Categories Versus Specific Items

EPA has adopted two approaches in its designation of items that are made with recovered materials. For some items, such as parking stops, the Agency designated *broad* categories of items and provided information in the RMAN as to their appropriate applications or uses. For other items, such as plastic envelopes, EPA designated *specific* items, and, in some instances, included in the designation the specific types of recovered materials or applications to which the designation applies. The Agency provided the following explanation for these approaches to designating items in the preamble to the first CPG (60 FR 21369, May 1, 1995):

> *EPA sometimes had information on the availability of a particular item made with a specific recovered material (e.g., plastic), but no information on the availability of the item made from a different recovered material or any indication that it is possible to make the item with a different recovered material. In these instances, EPA concluded that it was appropriate to include the specific material in the item designation in order to provide vital information to procuring agencies as they seek to fulfill their obligations to purchase designated items composed of the highest*

percentage of recovered materials practicable. This information enables the agencies to focus their efforts on products that are currently available for purchase, reducing their administrative burden. EPA also included information in the proposed CPG, as well as in the draft RMAN that accompanied the proposed CPG, that advised procuring agencies that EPA is not recommending the purchase of an item made from one particular material over a similar item made from another material. For example, EPA included the following statement in the preamble discussion for plastic desktop accessories (59 FR 18879, April 20, 1994): "This designation does not preclude a procuring agency from purchasing desktop accessories manufactured from another material, such as wood. It simply requires that a procuring agency, when purchasing plastic desktop accessories, purchase these accessories made with recovered materials...

The Agency understands that some procuring agencies may believe the designation of a broad category of items in the CPG requires them to: (1) procure all items included in such category with recovered materials content and (2) to establish an affirmative procurement program for the entire category of items, even where specific items within the category may not meet current performance standards. This is clearly not required under RCRA as implemented through the CPG and the RMAN. RCRA section 6002 does not require a procuring agency to purchase items with recovered materials content that are not available or that do not meet a procuring agency's specifications or reasonable performance standards for the contemplated use. Further, RCRA section 6002 does not require a procuring agency to purchase such items if the item with recovered materials content is only available at an unreasonable price or the purchase of such item is inconsistent with maintaining a reasonable level of competition. However, EPA stresses that, when procuring any product for which a recovered materials alternative is available that meets the procuring agency's performance needs, if all other factors are equal, the procuring agency should seek to purchase the product made with highest percentage of recovered materials practicable.

It is important to note that EPA's designation of an item does not signify that the Agency is recommending the purchase of an item made from a particular material over a similar item made from a different material. For example, EPA included the following statement in the preamble discussion for plastic desktop accessories (59 FR 18879): "This designation does not preclude a procuring agency from purchasing desktop accessories manufactured from another material, such as wood. It simply requires that a procuring agency, when purchasing plastic desktop accessories, purchase these accessories made with recovered materials..."

D. Item Designation Categories

Items designated in the CPG II are organized in the following product categories: paper and paper products, vehicular products, construction products, transportation products, park and recreation products, landscaping products, non-paper office products, and miscellaneous products. The categories were developed to describe the application of each designated item.

- **Paper and Paper Products**: includes printing/writing papers, newsprint, tissue products, paperboard products, and packaging. This category does not include paper and paper products used in construction applications. A final RMAN for paper and paper products containing recovered materials was issued on May 29, 1996, at 61 FR 26985. No paper products are included in the CPG II.

- **Vehicular Products:** products used in repairing and maintaining automobiles, trucks, and other vehicles. Examples include re-refined lubricating oils, retread tires, and engine coolants. No additional vehicular products are designated in the final CPG II.

- **Construction Products:** products used in constructing roads and the interior and exterior components of commercial and residential buildings. Examples include building materials and paint. In the CPG II, EPA designates shower and restroom dividers/partitions and reprocessed and consolidated latex paint for specific uses in the construction products category.

- **Transportation Products:** products used for directing traffic, alerting drivers, and containing roadway noise and pollution. Examples include parking stops and traffic control devices. In the CPG II, EPA designates parking stops, delineators, flexible delineators, and channelizers in the transportation products category.

- **Park and Recreation Products:** products used in operating and maintaining parks and recreational areas. Examples include playground equipment and running tracks. In the CPG II, EPA designates plastic fencing in the park and recreation products category.

- **Landscaping Products:** products used to contain, maintain, or enhance decorative and protective vegetation or areas surrounding buildings and roadways. Examples include compost and hydraulic mulch. In the CPG II, EPA designates garden and soaker hoses and lawn and garden edging in the landscaping products category.

- **Non-Paper Office Products:** equipment and accessories used by government agencies and businesses to perform daily operational and administrative functions of an office. Examples include toner cartridges, desktop accessories, and waste receptacles. In the CPG II, EPA designates printer ribbons and plastic envelopes in the non-paper office products category.

- **Miscellaneous Products:** includes all other products not covered by the categories listed above. In the CPG II , EPA designates pallets in the miscellaneous products category.

III. RECOVERED MATERIALS CONTENT

Under RCRA section 6002 and Executive Order 12873, EPA is required to make recommendations to procuring agencies for purchasing the EPA-designated items containing recovered materials. EPA's recommendations typically include the ranges of recovered materials content levels within which the items are currently available, relevant specifications, and other information pertinent to purchasing the items containing recovered materials. The purpose of the recommendations is to assist procuring agencies in fulfilling their obligations under RCRA section 6002 and the Executive Order to purchase designated items containing the highest percentages of recovered materials practicable.

In providing guidance in the RMAN, the Executive Order directs EPA to present "the range of recovered materials content levels within which the designated recycled items are currently available." Based on the information available to the Agency, EPA recommends ranges that encourage manufacturers to incorporate the maximum amount of recovered materials into their products without compromising competition or product performance and availability. EPA recommends that procuring agencies use these ranges, in conjunction with their own research, to establish their minimum content standards. In some instances, EPA recommends that procuring agencies establish a specific level (e.g., 100 percent recovered materials), rather than a range, because the item is universally available at that recommended level.

While EPA understands that specific minimum recovered content standards might be easier for procuring agencies to administer than a content range, which necessitates developing their own minimum content standards, EPA recommends ranges rather than minimum standards for several reasons.

First, the Executive Order directs EPA to develop ranges, not minimum content standards or specific recovered materials levels.

Second, EPA has only limited information on recovered materials content levels for the new items proposed for designation. It would not be appropriate to establish minimum content standards without more detailed information, because the standards may be treated as maximum targets by manufacturers and may stifle innovative approaches for increasing recovered material use. EPA hopes that the use of ranges will encourage manufacturers producing at the low end of the recovered materials range to seek ways of increasing their recovered materials usage. Minimum content standards are less likely to encourage such innovation.

Third, many items are purchased locally rather than centrally. As a result, the recovered materials content of the items are likely to vary from region to region depending on local cost and availability of recovered materials. Minimum content standards are unlikely to be effective given the regional variance in recovered materials content, because minimum content levels that are appropriate for one region may be excessively high or low for other regions. A recovered materials content range gives regional procuring agencies the flexibility to establish their own

recovered content standards and to make them as high as possible, consistent with the statute, given local product availability and market conditions.

EPA, once again, wants to stress that the recommendations in the RMAN II are just that — recommendations and guidance to procuring agencies in fulfilling their obligations under RCRA section 6002. The designation of an item as one that is or can be produced with recovered materials and the inclusions of recommended content levels for an item in the RMAN does not compel the procurement of an item *when the item is not suitable for its intended purpose*. RCRA section 6002 is explicit in this regard when it authorizes a procuring agency not to procure a designated item where the item "fails to meet the performance standards set forth in the applicable specification or fails to meet the reasonable performance standards of the procuring agencies." RCRA section 6002(1)(B), the United States Code (U.S.C.) 42 U.S.C. 6962(c)(B).

Thus, for example, EPA has designated shower and restroom dividers/partitions as items that are or can be produced with recovered materials content. The information the Agency developed showed that these items were available in either steel or plastic with recovered materials content. However, because these items are available with recovered materials content does not require the use of such items in every circumstance. The choice of appropriate materials used in construction remains with building engineers and architects. The effect of designation (and RCRA section 6002) is simply to require the purchase of items with recovered materials where consistent with the purpose for which the item is to be used. Procuring agencies remain free to procure dividers of materials other than steel or plastic where the design specifications call for other materials.

A. Methodology for Recommending Recovered Materials Content Levels

EPA identified and evaluated information regarding the percentages of recovered materials available in the items designated in the CPG II. EPA also gathered and reviewed publicly available information, information obtained from product manufacturers, and information provided by other federal agencies. Based on this information, EPA established recovered materials content level ranges for each of the designated items. In establishing the ranges, EPA's objective was to ensure the availability of the item, while challenging manufacturers to increase their use of recovered materials. By recommending ranges, EPA believes that sufficient information will be provided to enable procuring agencies to set appropriate procurement specifications when purchasing the newly designated items.

It is EPA's intention to provide procuring agencies with the best and most current information available to assist them in fulfilling their statutory obligations under RCRA section 6002. To do this, EPA will monitor the progress made by procuring agencies in purchasing designated items with the highest practical recovered materials content level and will adjust the recommended content ranges accordingly. EPA anticipates that other recommended ranges will narrow over time as other items become more available, but for technical reasons, many items may never be available with 100 percent recovered materials content.

B. Use of Minimum Recovered Materials Content Standards

For most designated items, EPA recommends that procuring agencies establish minimum recovered materials content standards. For some items, the use of minimum content standards is inappropriate because the product is remanufactured, reconditioned, or rebuilt (e.g printer ribbons contained in printer cartridges). In these instances, EPA recommends that procuring agencies use substantially equivalent alternatives to the minimum content standards approach as allowed in section 6002(i)(3) of RCRA. For example, in the case of printer ribbons, EPA is recommending that procuring agencies adopt one or both of the following approaches: (1) procure ribbon reinking or reloading services or (2) procure reinked or reloaded printer ribbons. Minimum content standards are inapplicable, because the recovered material is the expended printer ribbon or the ribbon cartridge, rather than individual materials used to produce the new printer ribbon.

Under RCRA section 6002(i), it is the procuring agency's responsibility to establish minimum content standards, while EPA provides recommendations regarding the levels of recovered materials in the designated items. To make it clear that EPA does not establish minimum content standards for other agencies, EPA refers to its recommendations as "recovered materials content levels," consistent with RCRA section 6002(e) and the Executive Order.

C. Preconsumer Versus Postconsumer Recovered Materials

Preconsumer recovered materials are often easier to incorporate into production processes than postconsumer recovered materials, because they tend to be more uniform and contain less contamination. For many items, however, EPA recommends that procuring agencies purchase items containing postconsumer recovered materials, because one of the RCRA section 6002(e) criteria for designating items is the potential impact of the procurement of an item on the solid waste stream. The Agency believes that recommending postconsumer recovered materials content levels for these items will have the most positive impact on reducing the amount of solid waste requiring disposal.

For several items, EPA recommends two-part content levels—a postconsumer recovered materials component and a total recovered materials component. In these instances, EPA found that both types of materials were being used to manufacture a product. Recommending only postconsumer content levels would fail to acknowledge the contribution to solid waste management made by manufacturers using other manufacturers' byproducts or scraps as feedstock.

D. Recommending 100 Percent Recovered Materials Content Levels

EPA recommends 100 percent recovered materials content for some items. Because the RCRA definition of recovered materials excludes internally generated scrap, it might be construed to suggest that no manufacturer can claim that its product contains 100 percent recovered materials since all manufacturers use some internally generated scrap as feedstock. EPA does not

support this interpretation.

There are two types of internally generated scrap (also known as manufacturer's scrap): scrap generated in a manufacturing process using only virgin materials and scrap generated in a manufacturing process using recovered materials as feedstock. EPA believes that scrap generated in a process using recovered materials as feedstock should be considered differently from scrap generated in a manufacturing process using only virgin material feedstocks. The Agency allows scrap to be counted as recovered materials to the extent that the feedstock contains materials that would qualify as recovered materials. Otherwise, there is an illogical and unnecessary obstacle to the manufacture of products using high levels of recovered materials. A manufacturer using 100 percent recovered materials should be able to certify that its product contains 100 percent recovered materials.

E. Calculation of Product Content for Purposes of Certification

RCRA section 6002(i)(2)(C) requires the affirmative procurement program to include procedures for estimating, certifying, and, where appropriate, reasonably verifying the amount of recovered materials content utilized in the performance of a contract. In addition, RCRA section 6002 requires contracting officers to obtain from vendors a certification "that the percentage of recovered materials to be used in the performance of the contract will be at least the amount required by applicable specifications or other contractual requirements." The Federal Acquisition Streamlining Act (Pub. L. 103-355) amended RCRA section 6002(c) to require estimates only for contracts in amounts greater than $100,000.

Because each product is different, EPA recommends that procuring agencies discuss certification with product vendors to ascertain the appropriate period for certifying recovered materials content. EPA recommends that consistent with federal procurement law requirements, whenever feasible, the recovered materials content of a product be certified on a batch-by-batch basis or as an average over a calendar quarter or some other appropriate averaging period as determined by the procuring agencies.

IV. UPDATES OF THE CPG AND RMAN

Section 502 of the Executive Order directs EPA to update the CPG annually and issue RMANs periodically to reflect changes in market conditions. As previously discussed in subsection C.1, on September 20, 1995, EPA published a notice in the *Federal Register* establishing a process for the public to suggest items for consideration and to provide information on products made from recovered materials (see 60 FR 48714). The notice also requested information on items that the Agency should consider for designation. A second notice was published on November 7, 1996, requested comments on the proposed designation of 13 new items, (proposed CPG II).

In response to the Agency's September 20, 1995, request for information, the EPA received comments and information from 32 commenters on over 60 items. Some of the items suggested for designation were already being considered by EPA and are included in the final CPG II. The Agency also received 19 comments from the November 7, 1996, public comment request. The Agency will continue to evaluate the information submitted on all items and will consider their designation in future updates to the CPG and RMAN. Comments received in response to EPA's September 20, 1995, request for information are summarized in a document entitled "Summary of Information Submitted in Response to EPA's Request for Information on the Designation of Items for the CPG," dated April 12, 1996. Comments received in response to the proposed CPG II are summarized in this document. Additional information on items being considered for designation is contained in a report entitled "*Research on Potential Items for Designation in the Comprehensive Procurement Guidance*," dated, July 24, 1996. Copies of the two 1996 reports have been placed in the RCRA Docket (F-96-CP2P-FFFFF). A copy of this report has been placed in RCRA Docket F-97-CPG2F-FFFFF, which is the docket for the final CPG II and RMAN II.

V. AFFIRMATIVE PROCUREMENT PROGRAMS

An affirmative procurement program is an agency's strategy for maximizing its purchases of an EPA-designated item. RCRA section 6002(i) requires that an affirmative procurement program consist of a minimum of four elements: (1) a preference program; (2) a promotion program; (3) procedures for obtaining estimates and certifications of recovered materials content and, where appropriate, reasonably verifying those estimates and certifications; and (4) procedures for monitoring and annually reviewing the effectiveness of the program. In addition, the Executive Order requires that agency affirmative procurement programs encourage the electronic transfer of documents and the two-sided printing of government documents, and include provisions in contracts, grants, and cooperative agreements that require documents to be printed two-sided on recycled paper.

The information provided in this Section was previously provided in CPG I and RMAN I. It is included here for the convenience of the reader. In CPG II, EPA did not revise the recommendations for affirmative procurement programs.

Preference programs are discussed in detail in Section IV.B of the Appendix. This section of the document discusses promotion and monitoring. Certification is discussed in Section III.E of this document.

EPA recommends actions be taken by requesting officials, contracting officials, contracting officers, architects, and engineers when purchasing designated items. In order to provide maximum flexibility to procuring agencies when implementing the requirements of RCRA section 6002, EPA recommends the Environmental Executive within each procuring agency take the lead in developing the agency's affirmative procurement program and in implementing the recommendations set forth in the RMAN II.

The basic responsibilities of an Agency Environmental Executive are described in Sections 302 and 402 of the Executive Order. Section 302 of the Executive Order charges each agency’s Environmental Executive with coordinating all environmental programs in the areas of acquisition, standard and specification revision, facilities management, waste prevention, recycling, and logistics. Section 402(c) of the Executive Order further requires each agency’s Environmental Executive to track and report, to the Federal Environmental Executive, agency purchases of EPA-designated items. In the absence of an agency’s Environmental Executive, EPA recommends that the head of the implementing agency appoint an individual who will be responsible for ensuring the agency's compliance with RCRA section 6002 and the Executive Order.

RCRA section 6002 and the Executive Order require procuring agencies to establish affirmative procurement programs for each EPA-designated item. EPA recommends that each agency develop a single, comprehensive affirmative procurement program with a structure that allows for the integration of new items as they are designated. EPA encourages agencies to implement preference programs for non-guideline items as well, in order to maximize their

purchases of recycled content products and foster markets for recovered materials.

RCRA section 6002(i)(2)(B) requires each procuring agency to adopt a program to promote its preference to buy EPA-designated items with recovered materials content. The promotion component of the affirmative procurement program educates staff and notifies an agency's current and potential vendors, suppliers, and contractors of the agency's intention to buy recycled content products.

In the original five procurement guidelines, EPA targeted its recommendations for promoting the affirmative procurement program at the agency's vendors and contractors. EPA also believes that the education of an agency's employees is an important part of the promotion program. Therefore, EPA believes that an agency's promotion program should consist of two components: an internal promotion program and an external promotion program.

There are several methods that procuring agencies can use to educate employees about their affirmative procurement programs. These methods include:

- Preparing and distributing agency affirmative procurement policies through in-house publications and electronic mail.
- Publishing articles in agency newsletters and on the agency’s World Wide Web site.
- Including affirmative procurement program requirements in agency staff manuals.
- Conducting workshops and training sessions to educate employees about their responsibilities under agency affirmative procurement programs.

Methods for educating existing contractors and potential bidders of an agency's preference to purchase products containing recovered materials include publishing articles in appropriate trade publications, participating in vendor shows and trade fairs, placing statements in solicitations, and discussing an agency's affirmative procurement program at bidders' conferences.

Procuring agencies should monitor their affirmative procurement programs to ensure that they are fulfilling their requirements to purchase items composed of recovered materials to the maximum extent practicable. RCRA section 6002(i)(2)(D) requires the affirmative procurement program to include procedures for annually reviewing and monitoring the effectiveness of agency affirmative procurement programs. Section 402 of the Executive Order requires the Environmental Executive of each federal Executive agency to track and report on agency purchases of EPA-designated items. Additionally, RCRA section 6002(g) requires OFPP to submit a report to Congress every 2 years on actions taken by federal agencies to implement the affirmative procurement requirements of the statute. Also, Section 301 of the Executive Order requires the Federal Environmental Executive to submit an annual report to the Office of

Management and Budget (OMB), at the time of agency budget submission, on federal compliance with the Executive Order. In order to fulfill their responsibilities, the Federal Environmental Executive and OFPP request information from federal agencies on their affirmative procurement practices. Therefore, it is important for agencies to maintain adequate records of procurements that may be affected by Executive Order and RCRA requirements.

In order to comply with the Executive Order, federal agencies will need to track their purchases of products made with recovered materials content. This will also allow them to establish benchmarks from which progress can be assessed. To maintain adequate records on procurement of products containing recovered materials, procuring agencies may choose to collect data on the following:

- The minimum percentages of recovered materials content in the items procured or offered.
- Comparative price information on competitive procurements.
- The quantity of each item procured over a fiscal year.
- The availability of each item with recovered materials content.
- Performance information related to recovered materials content of an item.

EPA recognizes that a procuring agency may be unable to obtain accurate data for all items designated by EPA. EPA does not believe that this is a problem. Estimated data is likely to be sufficient for determining the effectiveness of an agency's affirmative procurement program.

VI. DEFINITIONS

In the proposed CPG II, EPA proposed definitions for the following new item-specific terms: channelizers, delineators, flexible delineators, garden hoses, latex paint, lawn edging, pallets, parking stops, printer ribbons, restroom dividers, shower dividers/partitions, plastic fencing, and soaker hoses. The proposed definitions were based on industry definitions, including ASTM or other standard specifications, or represented descriptions of the scope of items being designated. EPA requested comment on each of these definitions but only received comments on the definitions of "shower and restroom dividers" and "snow fencing." As a result of the comments, the definitions pertaining to these two items have been revised and are included in the final CPG II and RMAN II as discussed below in the responses to the item-specific comments.

This document contains discussions and recommendations on the recovered materials content levels and postconsumer materials content levels at which the designated items are generally available. The terms "postconsumer materials" and "recovered materials" are defined at 40 CFR 247.3. These definitions are included here for the convenience of the reader.

Postconsumer materials means a material or finished product that has served its intended end use and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item. Postconsumer material is part of the broader category of recovered materials.

Recovered materials means waste materials and byproducts which have been recovered or diverted from solid waste, but such term does not include those materials and byproducts generated from, and commonly used within the original manufacturing process.

VII. AGENCY'S RESPONSE TO COMMENTS

EPA requested information and pubic comment on the proposed CPG II and the draft RMAN II. In general the agency requested comments on : (1) the items selected for designation in the CPG II and their recycled content; (2) the recommended recovered material content levels for the selected items; (3) the items selected for potential future designation; (4) the overall accuracy of the information presented in the proposed item designations; and (5) a few specific issues pertaining to particular products. Requests for the specific comments and information were included in the narrative discussions for each of the items proposed for designation.

EPA received 19 comments on the proposed CPG II and draft RMAN II. Comments addressed issues for items in the construction, transportation, park and recreation, landscaping, non-paper office, and miscellaneous products categories. These comments covered a variety of topics including recovered materials content levels, item designation, terminology, and the accuracy of information presented. EPA carefully considered all of these comments in developing the final CPG II and the RMAN II. A summary of the comments, including those on specific item designations, and the Agency's responses are provided in the sections that follow.

EPA received general comments pertaining to item designations; the interaction between the affirmative procurement requirements and the Federal Acquisition Regulation; and record-keeping. These comments and the Agency's response are summarized in the following subsections.

Comment: The Steel Recycling Institute has requested that EPA designate steel in order to recognize that this material is recyclable, has a high recycling rate, and contains recovered materials.

Response: EPA agrees that steel, like many metals, is both recyclable and can contain recovered materials. EPA also agrees that steel, like many metals, is a waste management success story in terms of its recyclability, high recycling rate, and recovered materials content. EPA also applauds the steel industry's source reduction efforts to produce stronger, lighter weight steel, in response to customer demand.

However, RCRA specifically requires EPA to designate *products* that are or can be made with recovered materials, not the component materials used in those products. Accordingly, EPA designates products that are manufactured with steel, but not materials, such as steel, that can contain recovered materials.

Comment: The U.S. Department of the Interior (DOI) raised issues specific to the Federal Acquisition Regulation (FAR), which governs Federal acquisition activities. DOI stated that the proposed CPG II and draft RMAN II do not adequately address the importance of and the responsibility of key non-procurement personnel, who generally develop and define a procuring agency's environmental needs. DOI referenced provisions of the FAR. Additionally, DOI stated

that the draft RMAN II provides no specific guidance on the use of required sources, such as Federal Prison Industries (UNICOR) and Javits-Wagner-O'Day (JWOD) participating non-profit agencies.

Response: EPA has stated on many occasions that implementation of RCRA section 6002 must be consistent with other Federal procurement law. For example, in Appendix I to "Comprehensive Procurement Guideline (CPG) II — Supporting Analyses (August 1, 1996), EPA stated the following:

> The purchase of recycled products under RCRA section 6002 must be consistent with other Federal procurement law, which requires that contracts be awarded to the lowest priced, responsive, responsible bidder...
>
> On May 31, 1995, the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council issued an interim rule amending the Federal Acquisition Regulation (FAR) parts 7, 10, 11, 15, 23, 36, 42, and 52 to reflect the government's preference for the acquisition of environmentally-sound and energy-efficient products and services and to establish an affirmative procurement program favoring items containing the maximum practicable content of recovered materials. The interim rule is in effect until the final rule is published.
>
> EPA refers procuring agencies to the FAR for guidance regarding acquisitions issues.

Comment: The U.S. Department of Energy (DOE) expressed concern about the burden of tracking purchases of each procurement item designated by EPA and the potential difficulty in establishing the infrastructure to institute policies and procedures when administrative staff is being reduced. DOE further noted that the use of government credit cards would increase the difficulty of tracking purchases. In addition, DOE requested that the interagency reporting task force convened by the Office of Federal Procurement Policy and the Office of the Federal Environmental Executive address streamlining reporting requirements.

Response: In response to a request from EPA to provide information on its initiatives to streamline the reporting requirements, the Office of the Federal Environmental Executive (OFEE) provided the following information. The requirement that Federal procuring agencies report on their procurement of EPA-designated items is mandated by RCRA section 6002(g) and Section 301 of Executive Order 12873. Therefore, reporting is not at the discretion of the Federal Environmental Executive (OFEE) or EPA. While EPA and OFEE are cognizant of the labor necessary to collect and report annual procurement data, neither office is authorized to significantly change the data contained in the final report.

As noted by the commenter, OFEE and the Office of Federal Procurement Policy chartered an interagency steering committee to identify streamlining initiatives for the data collection requirements. As a result of the committee's recommendations, the agency data

collection requirements for fiscal year 96 were reduced by 1/3 by capturing data in a more efficient manner. For agencies that requisition CPG items from the Federal Supply System, the supply center tracks and reports on the agencies purchases. While this significantly reduces an agency's data collection and reporting burden, the final report contains the same itemized information.

OFEE encourages DOE to participate as a member of the RCRA 6002 reporting steering committee to address the concerns raised in the DOE comments to EPA.

VIII. CONSTRUCTION PRODUCTS

A. Clarification of Floor Tiles, Structural Fiberboard, and Laminated Paperboard Designations and Recommendations

1. Background on Floor Tiles, Structural Fiberboard, and Laminated Paperboard

In the May 1, 1995, CPG I, EPA designated floor tiles, structural fiberboard, and laminated paperboard, and provided recommendations, including recovered materials content levels, for these items in the RMAN I. The designation of these items led to some confusion on the part of procuring agencies as to their obligation to purchase these items for specific applications. Specifically, EPA received inquiries on the requirements for purchasing and installing heavy duty commercial floor tile, and on the scope of the structural fiberboard and laminated paperboard designations. Based on these inquiries, the Agency concluded that it would be beneficial to describe the obligations of procuring agencies, with respect to these items, by issuing a clarification (see 61 FR 57748, November 7, 1996).

a. Floor Tiles

In CPG I, EPA designated floor tiles and patio blocks containing recovered rubber or plastic [40 CFR 247.12(e)]. The Agency designated these items as broad categories of items, encompassing many different applications. In RMAN I, however, the Agency recommended that procuring agencies purchase floor tiles with specified minimum recovered rubber or plastic content for “heavy duty/commercial type” applications only. EPA limited the recommended applications to heavy-duty/commercial-type uses, because at the time the CPG I was issued, the Agency was not aware of any manufacturers that made floor tile with recovered materials for standard office flooring. At that time, however, EPA was aware that at least two manufacturers were considering using recovered materials in standard office flooring and that one manufacturer indicated that these products would be available in 1995, the year the CPG I was issued. The Agency concluded that floor tile could be made with recovered materials for standard office flooring. The Agency, therefore elected to broadly designate floor tiles but limit its initial recommendations to heavy-duty/commercial-type uses.

In CPG I and RMAN I, EPA used the term “heavy-duty, commercial-type uses,” because there were no published industry-wide definitions to describe the applications to which the recovered materials requirements should be applied. In the Supporting Analysis for the RMAN I, EPA explained what it meant by "heavy-duty, commercial-type applications." The Agency described, in general terms, a number of commercial and industrial settings where the use of such tiles with recovered materials content would be appropriate. These would include entrance ways in airports and stores, furniture showrooms, skating rinks, and fitness centers. Subsequently, EPA learned that this discussion may have caused some confusion. Some procuring agencies confused EPA's description of the areas where such tiles might be appropriate with an EPA recommendation that such tiles should always be used in such settings. This was not the Agency's

intention. In the proposed CPG II *Federal Register* notice, the Agency revised its original recommendation by stating that the use of these tiles is appropriate for specialty purpose uses at particular locations (see 61 FR 57751, November 7, 1996). Such specialty purpose uses involve limited flooring areas where grease, tar, snow, ice, wetness, or similar substances or conditions are likely to be present (e.g., raised, open-web tiles for drainage on school kitchen flooring). The Agency also issued a supplemental notice to clarify the obligations of procuring agencies with respect to the purchase of designated items (61 FR 58067, November 12, 1996).

In addition, EPA requested information on the use of recovered materials in standard office floor tiles. The Agency received three comments that are summarized in the next subsection of this document. Based on the comments and additional research conducted by EPA, the Agency decided not to recommend floor tile made with recovered materials for standard office or more general purpose uses at this time.

As a result of the confusion over the floor tile recommendations, EPA submitted comments to the Civilian Agency Acquisition Council (CAAC) and the Defense Acquisition Regulations Council (DARC) on the interim rule amending the Federal Acquisition Regulation (FAR) (60 FR 28494, May 31, 1995). The FAR interim rule incorporates, among other environmentally related procurement policies, the requirements set forth in RCRA section 6002. The comments submitted by EPA recommended a clarification to the FAR to make it clear that procuring agencies did not need to document their decision to purchase items for which EPA has not included purchase recommendations in an associated RMAN. The CAAC and DARC adopted this recommendation in the final FAR amendment. In §23.404(b)(3), the FAR states that procuring officers are required to document their decisions to purchase "EPA-designated items that do not meet the EPA minimum recovered material standards." "EPA-designated items" is defined in §23.402 as items for which EPA has provided purchasing recommendations in a related RMAN. (See 62 FR 44811, August 22, 1997.) Thus, under the revised FAR, procuring agencies are not required to document decisions not to purchase recovered materials content floor tile for standard office flooring uses because EPA did not recommend levels for floor tiles used in these applications.

b. Structural Fiberboard and Laminated Paperboard

In the CPG I, EPA designated structural fiberboard and laminated paperboard products for applications other than building insulation (40 CFR 247.12(b)). EPA further included acoustical and non-acoustical ceiling tiles and lay-in panels in its list of applications to which the designation applies. After the CPG I was issued, one manufacturer of mineral fiber ceiling products expressed concern over the scope of the structural fiberboard and laminated paperboard designations, particularly as they applied to acoustical and non-acoustical ceiling tiles and lay-in panels.

In the proposed CPG II, EPA clarified that applications covered in the structural fiberboard and laminated paperboard designation (i.e., building board, sheathing, shingle backer,

sound deadening board, roof insulating board, insulating wallboard, acoustical and non-acoustical ceiling tile, non-acoustical and non-acoustical lay-in panels, floor underlayments, and roof overlay (cover board)), applied to the purchase of cellulosic fiber structural fiberboard and laminated paperboard products only. The listed applications, and therefore the designation, did not apply to products made from other similar or competing materials. The Agency provided further clarification by describing situations where agencies should and should not seek to purchase ceiling tile made with recovered material. EPA received no comments in response to this clarification.

2. Summary of Comments and Agency's Response

EPA requested comment on whether standard office flooring is being manufactured with recovered materials. Respondents stated that they were unaware of any floor tiles containing recovered materials for other applications, such as standard office flooring. Such floor tiles would be designed to comply with ASTM F 1066 Standard Specification for Vinyl Composition Floor Tile.

Comment: The Resilient Floor Covering Institute (RFCI) and Armstrong World Industries supported the Agency's proposed revision to Table C-5. RFCI stated that the footnote should also include a citation to the November 12, 1996, *Federal Register* clarification of the floor tiles designation (see 61 FR 58067).

Response: EPA believes that the footnote provides sufficiently clear guidance to procuring agencies without a reference to the November 12, 1996, *Federal Register* notice. Therefore, EPA is not making further revisions to the footnote in the RMAN II.

Comment: RFCI also stated that EPA should revise the existing note to Table C-5 to make clear that the third sentence of the note refers only to the floor tile uses which are subject to the RMAN (i.e., heavy-duty and commercial applications).

Response: EPA disagrees. The note in question contains standard text used in notes to most of the tables in the RMAN. It informs procuring agencies that EPA's recommendations do not preclude a procuring agency from purchasing the item manufactured from another material. It simply requires them, when purchasing the item manufactured from materials for which EPA recommends recovered materials content, to purchase the item made with recovered materials. Because the note follows Table C-5, and the text of Table C-5 clearly limits EPA's recommendations to floor tiles for heavy-duty/commercial applications, EPA believes that procuring agencies will understand that the note also refers only to floor tiles for heavy-duty/commercial applications. Therefore, EPA is not making further revisions to the note following Table C-5 in the RMAN II.

B. Shower and Restroom Dividers/Partitions

1. Background

In §247.12(f) of the proposed CPG II, EPA proposed to designate shower and restroom dividers. In Section C-6 of the accompanying draft RMAN II, EPA recommended that shower and restroom dividers contain the levels of recovered materials listed in Table 2.

Table 2

Draft Recovered Materials Content Recommendations for Shower and Restroom Dividers

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Steel	10 to 15	27 to 100
Plastic	20 to 100	20 to 100

In the background document for the draft RMAN II, EPA discussed two specifications for shower and restroom dividers, neither of which specifically requires the use of recovered materials. EPA requested information about any other specifications that are relevant to the use of recovered materials in shower and restroom dividers. No commenters submitted specification information.

EPA received one comment requesting a modification of the term "shower and restroom divider" and one comment providing new information about the current postconsumer and recovered materials content of steel used in dividers/partitions. EPA received no other comments on the designation of shower and restroom dividers/partitions and no comments on the draft recommendations for plastic dividers/partitions. Therefore, in the final CPG II, EPA is designating shower and restroom dividers, with the modification indicated below. In the final RMAN II, EPA is retaining the retaining the draft recommendations for the content levels for plastic shower and restroom dividers and revising the draft recommendations for steel shower and restroom dividers as indicated below.

2. Summary of Comments and Agency's Response

Comment: The U.S. General Services Administration (GSA) recommended that EPA refer to the item as "shower and restroom dividers/partitions," because the term "partition" is also widely used in describing dividers.

Response: After additional research into industry practices, EPA found that both terms are commonly used. Generally speaking, "partition" implies that a door is used, and "divider" implies

a dividing wall. Based on GSA's comment and the additional information received, EPA is revising the term for this item in the CPG II and RMAN II to "shower and restroom dividers/partitions." The revised definition is also used throughout this document.

Comment: The Steel Recycling Institute (SRI) stated that the type of steel (flat or sheet products) used in shower and restroom dividers is typically made by the basic oxygen furnace (BOF) process and uses an average of 25 to 30 percent old steel to make new steel . SRI provided updated information on the recovered and postconsumer materials content of BOF steel. SRI recommended that steel shower and restroom dividers contain 20 to 30 percent recovered materials, including 16 percent postconsumer materials.

Response: Based on this new industry data, in the RMAN II, EPA revised the content recommendations for steel shower and restroom dividers/partitions to 20 to 30 percent recovered materials, including 16 percent postconsumer materials.

3. Rationale for Designation

EPA believes that shower and restroom dividers/partitions satisfy the statutory criteria for selecting items for designation.

a. Use of Materials in Solid Waste

According to information obtained by EPA, shower and restroom dividers/partitions are manufactured with several recovered materials including steel, high-density polyethylene (HDPE), low-density polyethylene (LDPE), and polypropylene (PP). As discussed in Appendix V, plastic and steel are components of MSW. Although these materials are recovered for use in a variety of products, additional end-use markets are still needed.

b. Technically Proven Uses

Performance

EPA is aware of at least 9 manufacturers that produce shower and restroom dividers/partitions using recovered plastic and 21 manufacturers and vendors of dividers/partitions using recovered steel. GSA estimates that 90 percent of the dividers/partitions purchased by federal agencies through GSA are made of steel. Shower dividers/partitions are also purchased from other sources; however, EPA has limited information regarding those purchases. Steel dividers/partitions are easy to clean, can be painted to match the color scheme of the facility where they are installed, and they offer low long-term maintenance.

Plastic dividers/partitions do not rust or require painting, and some manufacturers offer warranties of up to 15 years. One government agency reported using recovered content plastic dividers/partitions for 3 years without requiring any repairs. The U.S. Army Corps of Engineers

has found that recovered content plastic shower and restroom dividers/partitions perform well and retain a high-quality appearance. However, plastic dividers/partitions with high recovered materials content tend to be available in fewer colors.

Price

Steel dividers/partitions are generally more popular because of their low initial cost. EPA's research indicates that the initial cost for plastic dividers/partitions (both recovered and virgin) can be two to three times more expensive than other dividers; however, these costs may be somewhat offset by reduced maintenance costs throughout the life of the product. Recovered content plastic dividers/partitions are currently less expensive than virgin plastic dividers/partitions, because postconsumer HDPE is generally less expensive than virgin HDPE.

c. Impact of Government Procurement

Shower and restroom dividers/partitions are used by government agencies in a variety of settings. They are used in restrooms, showers, and locker rooms in schools, hospitals, institutional housing, restaurants, airports, parks, and many other facilities. Government agencies purchase or use appropriated federal funds to purchase shower and restroom dividers/partitions. Although no comments were received in response to EPA's request for information on the number of shower and restroom dividers/partitions procured by government agencies, EPA believes the quantities are significant. Thus, EPA believes that shower and restroom dividers/partitions are purchased in sufficient quantities to support the designation under RCRA section 6002.

4. Designation

In 40 CFR 247.12(f), EPA is designating shower and restroom dividers/partitions containing recovered plastic or steel. This designation does not preclude a procuring agency from purchasing shower and restroom dividers/partitions manufactured from another material, such as wood. It simply requires that a procuring agency, when purchasing shower and restroom dividers/partitions made from plastic or steel, purchase these items with recovered materials when these items meet applicable specifications and performance requirements.

5. Preference Program

As noted in Section VIII.B.2. above, EPA is revising its recovered materials content recommendations for steel shower and restroom dividers/partitions to reflect new industry data. In the final RMAN II, EPA is recommending the recovered materials content levels shown in Table 3.

Table 3

Final Recovered Materials Content Recommendations for Shower and Restroom Dividers/Partitions

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Steel	16	20 to 30
Plastic	20 to 100	20 to 100

6. Background for Recommendations

Shower and restroom dividers/partitions are panels used to separate individual shower, toilet, and urinal compartments in commercial and institutional facilities. Dividers/partitions are available in various styles, from simple panels to customized enclosures and are generally made to order, according to size, color, and style. They are generally 1-inch thick, which is the industry standard. Styles include: floor-anchored, floor-anchored and overhead-braced, ceiling-hung, floor and ceiling supported, and wall-hung.

Shower and restroom dividers/partitions generally are made of plastic or steel. Some plastic dividers/partitions are made with a fiberboard, plywood, particle board, or phenolic core with a plastic laminate finish, while others are solid extruded or compression molded plastic. Steel dividers/partitions generally have a honeycomb kraft paper center. Other materials, such as wood, may be used for some applications, but EPA has not identified any manufacturers or government or private users of wooden dividers/partitions.

EPA identified 21 manufacturers and vendors of steel shower and restroom dividers/partitions. EPA believes there are many more, however, because steel product manufacturers produce steel dividers/partitions along with many other products. According to comments submitted by the SRI, the type of steel (flat or sheet products) used in shower and restroom dividers/partitions is typically made by the basic oxygen furnace process and uses an average of 25 to 30 percent recovered steel, to make all flat or sheet steel (including 16 percent postconsumer content). Based on this recent industry data, EPA has revised the content recommendations for steel shower and restroom dividers/partitions to 20 to 30 percent recovered materials, including 16 percent postconsumer materials (see Table 3).

EPA identified nine manufacturers producing shower and restroom dividers/partitions made with recovered content ranging from 20 to 100 percent. Eight of these manufacturers use recovered HDPE, and one uses 100 percent postconsumer mixed plastics, including HDPE, LDPE, and PP.

Table 4 presents the most recent information gathered by EPA pertaining to the recovered materials content included in shower and restroom dividers/partitions.

Table 4

Recovered Materials Content of Shower and Restroom Dividers/Partitions

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Steel	Industry Standard: 16	20 to 30
HDPE	Company A: Unknown	30 to 75
	Company B: Unknown	80
	Company C: 100	100
	Company D: 60-75	85
	Company E: 100	100
	Company F: 20-50	50
	Company G: 30	90
	Company H: 20	up to 90
HDPE, LDPE, PP	Company I: 100	100

7. Specifications

The American Institute of Architects (AIA) has issued guidance for specifying construction materials, including plastic and steel dividers/partitions, in construction contracts. The AIA guidance is known throughout the construction industry as the "Masterspec." GSA distributes the Masterspec.. as guidance to its regional and headquarter offices for procuring both steel and plastic dividers/partitions as part of construction contracts. Some GSA locations use it or a modified version of it, and some do not use it. Section 10155 of the Masterspec. provides specifications for plastic and steel dividers/partitions. Neither the Masterspec. or AIA require or preclude the use of recovered materials in these products. The Masterspec. identifies three types of plastic dividers/partitions: (1) plastic laminate finish; (2) solid plastic, homogenous color; and (3) solid plastic, melamine facing. The guidance specifies two types of steel dividers: (1) baked enamel finish; and (2) stainless steel. The Masterspec. also describes two types of steel dividers/partitions: baked enamel finish and stainless steel. The AIA guidance does not provide specifications for wood dividers/partitions.

The U.S. Army Corps of Engineers' Guide Specification CEGS-10160, "Toilet Partitions," includes descriptions for plastic and plastic-laminated shower and restroom dividers. The most current version of this specification, dated August 1994, neither requires nor precludes the use of recovered materials.

In the draft RMAN II Supporting Analysis, EPA requested further information about any other specifications that were relevant to the use of recovered materials in shower and restroom dividers/partitions. No additional information on specifications was submitted during the public comment period.

C. Latex Paint

1. Background

In §247.12(g) of the proposed CPG II, EPA proposed to designate latex paint. In Section C-7 of the accompanying draft RMAN II, EPA recommended that latex paint contain the levels of recovered materials listed in Table 5.

Table 5
Draft Recovered Materials Content Recommendations for Latex Paint

Product	Postconsumer Content (%)
Consolidated Latex Paint	100
Reprocessed Latex Paint	50 to 99

EPA noted that the recommended content levels for reprocessed latex paint may represent a limited range of colors, such as gray, brown, and other earthtones, and requested comments on the availability of white and lighter colors. Additionally, in the background document for the proposed CPG II, EPA noted that the Army Corps of Engineers prefers to specify the composition of paints, such as acrylic latex, vinyl latex, or modified acrylic latex. EPA requested additional information from other procuring agencies on this issue. In the background document for the draft RMAN II, EPA requested information on specifications that could be used when purchasing reprocessed or consolidated latex paints. EPA did not receive any comments or additional information on any of these issues.

EPA received seven comments on latex paint. One commenter opposed the designation of latex paint at this time; this commenter subsequently suggested revisions to the proposed designation. Another commenter requested a clarification about the scope of the proposed designation. The remaining five commenters provided clarifying information about the recommendations for latex paint content levels and specifications. All of the comments and the Agency's responses are summarized in the following subsections. As explained in the Agency's responses, EPA is designating reprocessed and consolidated latex paint for specific uses in the final CPG II. In the final RMAN II, EPA is including the draft recommendations for consolidated latex paint, modifying the draft recommendations for content levels for reprocessed latex paint, and adding information about stock numbers for use in purchasing reprocessed and consolidated latex paints through GSA.

2. Summary of Comments and Agency's Response

Comment: In the background section of the proposed CPG II, EPA referred to latex paint containing postconsumer materials as "reprocessed paint," "consolidated paint," and "recycled paint." "Recycled paint" was used as a general term for both reprocessed and consolidated paint. Several commenters noted that there are significant differences between reprocessed and consolidated paints. Recovered paint used to make reprocessed paint is sorted according to specified protocols, tested, strained, and blended according to certain specified standards. Various additional raw materials are also added to produce a consistent product. Consolidated paint, on the other hand, is poured into a drum and blended. Little or no new ingredients are added, so the paint varies from batch to batch. The commenters stated that the use of the term "recycled paint" to broadly categorize both products will create consumer confusion about the quality and nature of the two types of paints.

Response: EPA agrees that it is important to distinguish between reprocessed and consolidated latex paints in the context of the CPG II and RMAN II, because there are different content recommendations for these paints, and they are not used for identical applications. Therefore, EPA is not using the term "recycled paint" in the final CPG II and RMAN II and will differentiate between the types of latex paint throughout the CPG and RMAN, as well as the rest of this document.

EPA notes that the term "recycled paint" is used in the Agency's regulation for volatile organic compounds (VOC) levels in paints. (See the comment on VOCs below.) EPA believes that it is not confusing to use "recycled paint" in that context, because the VOC regulations more generally address paints made from recovered materials regardless of the process used. The same VOC limitation applies to both reprocessed and consolidated paint.

Comment: The National Paint & Coatings Association (NPCA) opposed the designation of latex paint at this time, citing a number of concerns, which are summarized in the following nine subsections.

Comment: NPCA commented that EPA's recommendations are overly broad because they apply to all interior and exterior architectural uses of latex paint. NPCA stated that the designation does not reflect the variety of different latex paint applications in government buildings and their performance requirements. NPCA further noted that the GSA has numerous specifications for latex paint, which contain specific requirements based on the products' desired use. NPCA cites a GSA specification for alkyd-modified latex paint to be used on exterior wood surfaces and a GSA specification for ready-mixed, latex-based paint for interior walls and ceilings. NPCA suggested that EPA could limit the designation and recommendations to interior and exterior architectural applications where color, consistency of performance, and durability are not primary concerns and a spray-gun application is not used. In its comments, NPCA did not provide a more explicit recommendation for limiting the latex paint designation.

In July 28, 1997, supplemental comments, NPCA suggested that EPA distinguish between consolidated and reprocessed latex paints. The commenter suggested that EPA revise the designation so as to designate only:

- Consolidated latex paint used for covering graffiti, where consistent color and consistency of performance are not primary concerns.

- Reprocessed latex paint used for interior and exterior architectural applications where the reprocessed latex paint meets all end use specifications (e.g., color, weathering, durability, hiding power, and applicability) for a particular application.

These suggestions are similar to the applications for reprocessed and consolidated latex paints that EPA had recommended in the draft RMAN II.

NPCA stated that adding the language about end use specifications in the suggested designation would alleviate paint industry concerns that the listing of latex paints will require the use of reprocessed latex paints for all interior and exterior uses without regard to any performance criteria. NPCA further stated that the selection of latex paint for a particular application is a complex process and that, while the GSA specification for "recycled" latex paint covers certain performance attributes, it may not include all of the attributes necessary for a particular application. NPCA referenced three ASTM latex paint specifications that it believes procuring agencies should consider in evaluating whether reprocessed latex paint has the appropriate performance attributes for a particular application. A copy of the supplemental comments is included in the docket for the final CPG II.

Response: EPA agrees that reprocessed and consolidated latex paints are not suitable for all applications. In the proposed CPG II, EPA noted, for example, that there is little available information on the performance of reprocessed and consolidated paints for non-architectural applications. (See 61 FR 57752.) In the draft RMAN II, EPA recommended the use of consolidated paint in limited applications, such as covering graffiti, where color and consistency of performance are not primary concerns. EPA recommended the use of reprocessed paint for interior and exterior architectural applications. See Section C-7 of the draft RMAN II at 61 FR 57763.

Based on the available information, EPA does not agree with NPCA that reprocessed latex paints should be limited to applications where color, consistency of performance, and durability are not primary concerns and a spray-gun application is not used. EPA agrees that limitations are appropriate for consolidated latex paint and had recommended in the draft RMAN II that applications of consolidated latex paints should be limited to applications, such as covering graffiti, where color and consistency of performance are not primary concerns. (See the Preference Program recommendations for latex paint at 61 FR 57763.)

Regarding architectural applications, EPA conducted additional research into the

applications for which agencies currently are using reprocessed latex paints. EPA found that agencies currently are using these paints for the same uses for which they would normally use latex paint. Users of these paints have successfully used them for painting interior and exterior wallboard, concrete, stucco, masonry, and wood, as well as metal surfaces.

The following are examples of the various applications in which reprocessed paint has been used and the level of customer satisfaction:

- **Neighborhood Housing Service of Saint Louis, Inc.** has used more than 500 gallons of reporcessed latex paint in the last 3 years. The paint has been used successfully in a number of interior (walls, ceilings, and trim) and exterior (walls, trim, and gutter boards) applications. In addition, the paint has been applied to different surfaces including wood, concrete block, dry wall, plaster, and limestone. Neighborhood Housing service have not recieve any complaints from residents regarding weathering, peeling, or cracking of these painted surfaces.

- **The City of Salinas, California**, has purchased more than 700 gallons of green reprocessed latex paint from E Coat, since 1994, to paint a baseball stadium complex. The city initially purchased about 500 gallons to repaint the stadium's bleachers, dugouts, and fences. As they continued to build more facilities within the complex, they purchased several hundred more gallons of the same color paint. The city is very happy with the overall performance of the product and E Coat's ability to match the color of the paint initially purchased.

GSA specification TT-P-2846, *Paint, Latex (Recycled with Post Consumer Waste),* applies to emulsion paint intended "for use on interior or exterior wallboard, concrete, stucco, masonry, and wood." This specification is only slightly different than GSA's recently issues Commercial Item Description (CID) for latex paint, A-A2246B. In fact, according to a GSA representative, TT-P-2546's Grade A requirements are identical to the CID which is used for interior walls and ceilings.

In researching latex paint for the proposed CPG II, EPA identified a latex paint study conducted by the California Polytechnic University (CalPoly). The CalPoly study included testing of reprocessed and consolidated latex paints for various key parameters pertaining to coverage and performance. The CalPoly study concluded that reprocessed paints are suitable for all of these applications. A copy of this study was included in the RCRA Docket for the proposed CPG II and draft RMAN II, F-96-CP2P-FFFFF. Both the GSA's Engineering and Commodity Management Division and CalPoly found that latex paints containing postconsumer materials can be manufactured to provide consistent performance, normal coverage, surface hiding, and durability. In addition, the GSA specification provides for testing of color and application properties, among other requirements.

Latex paints containing postconsumer materials also can be formulated for use in spray-

gun applications. According to paint manufacturers and municipalities contacted by EPA, spray applications of reprocessed latex paint pose few, if any, problems as long as the paint is clean and has been filtered properly. EPA notes, however, that some users have encountered problems with clogged spray nozzles, and one manufacturer recommends using a larger diameter spray tip to ensure that the nozzle will not become clogged. GSA specification TT-P-2846 requires that the reprocessed and consolidated latex paint meet specified brushing, roller coating, and spraying properties, which should ensure that manufacturers properly filter their products.

After considering the comments and conducting further research on reprocessed latex applications, EPA has concluded that the proposed designation of "latex paint" is too broad given the uses for which consolidated and reprocessed latex paints currently are available.

As discussed above in Section II.C, EPA sometimes designates broad categories of items and provides information in the RMAN as to their appropriate applications or uses. In other instances, EPA designates specific items and might include in the designation the specific types of applications to which the designation applies. The approach that EPA uses depends on whether items manufactured from other types of materials or for other applications are made with or could contain recovered materials. In the past, if EPA was not aware that items used for other applications were available, EPA limited its designations so as not to create an unnecessary burden on agencies to try to purchase an item that is not available. (See the preamble to CPG I, 60 FR 21373, May 1, 1995, for a more detailed discussion of EPA's approach.)

Based on the available information, EPA believes that consolidated latex paints are currently used for graffiti abatement. EPA further believes that reprocessed latex paints are available for architectural applications, but not for non-architectural applications (such as marking pavements or athletic fields). EPA also agrees with the commenter that reprocessed latex paints may not be available for all architectural performance needs.

Therefore, to avoid confusion by procuring agencies about the scope of the latex paint designation, EPA has concluded that it is preferable to limit the scope of the latex paint designation, rather than designating the broad category "latex paint," and recommending specific applications for using consolidated and reprocessed latex paints in RMAN II. A narrower designation will enable procuring agencies to focus their procurement efforts on the types of latex paint currently available either through GSA or directly from paint manufacturers.

Therefore, in today's final CPG II, EPA is revising the broad "latex paint" designation to provide the following specific designations:

- Consolidated latex paint used for covering graffiti.

- Reprocessed latex paint used for interior and exterior architectural applications such as wallboard, ceilings, and trim; gutter boards; and concrete, stucco, masonry, wood, and metal surfaces.

Under this revised designation, procuring agencies must purchase reprocessed latex paint for the interior and exterior architectural applications for which they would ordinarily use latex paint, such as wallboard, concrete, stucco, masonry, wood, and metal. Procuring agencies requiring a latex paint not meeting GSA's general "recycled" latex paint specification should determine whether a latex paint containing recovered materials is available and if not, may use a latex paint not containing recovered materials for that particular application.

RCRA section 6002 provides that a procuring agency is not required to purchase an EPA-designated item containing recovered materials if that item is not reasonably available or fails to meet the reasonable performance standards set forth in the agency's specifications. Thus, if an agency has a particular need (e.g., color, weathering, durability, hiding power) for a particular application, and consolidated or reprocessed latex paint is not available (or does not meet that specification), the agency may purchase a latex paint not containing recovered materials. Given the obligation of procuring agencies to procure designated items with the highest percentage of recovered materials practicable, an agency should thoroughly research the availability of consolidated or reprocessed latex paint meeting its specifications.

However, because RCRA provides for performance exceptions to the requirement to purchase EPA-designated items containing recovered materials, it would be redundant for EPA to include performance considerations in the description of the designation of consolidated and reprocessed latex paints. For this reason, in the final designations published today, EPA has not included the language about end use specifications suggested by the commenter.

Comment: In its original comments, NPCA commented that, because the Army Corps of Engineers has raised "concerns" about the performance qualities of reprocessed latex paint in different applications, it is premature for EPA to designate a generic category of latex paint. NPCA stated that the Army Corps has a study of latex paint underway and that EPA should defer the final designation of latex paint until this study is completed.

Response: EPA noted in the background document for the proposed CPG II that the Paint Technology Center at the U.S. Army Construction Engineering Research Laboratories (USACERL) was planning to test the performance of latex paint containing postconsumer materials. (See page 28, "Comprehensive Procurement Guideline (CPG) II — Supporting Analyses," August 1, 1996.) In May 1997, EPA contacted USACERL to discuss the findings of the study of reprocessed latex paint. USACERL informed EPA that it does not have any specific concerns about the performance qualities of reprocessed latex paint in different applications. Rather, USACERL tested reprocessed latex paints to confirm that they met GSA specification TT-P-2846 for "recycled" latex paints. USACERL also tested reprocessed latex paints against the GSA specifications for interior and exterior latex paints. To date, USACERL found that the reprocessed paints tested met the specifications for "recycled" latex paint and interior latex paints. USACERL is completing testing against the exterior paint specification, but the reprocessed latex paints performed well against the exterior paint tests conducted to date. Based on this

information about the results of the USACERL testing of reprocessed and consolidated latex paints, EPA does not believe that the designation of latex paint should be delayed pending the completion of the USACERL study.

Furthermore, USACERL informed EPA that the Army uses acrylic latex paints to paint primed metal and expressed concern only about the availability of reprocessed latex paint containing 100 percent latex acrylic. USACERL had not researched the availability of this item, however. EPA notes that under RCRA Section 6002, a procuring agency is not required to purchase an EPA-designated item containing recovered materials if the item is not reasonably available. If the Army requires acrylic latex paints for a particular application and this item is not available containing recovered materials, then the Army is not required to purchase latex paint containing recovered materials for that application. For such situations, EPA has previously recommended that agencies place a statement in their affirmative procurement programs indicating that the item is not reasonably available. (See pages 41 to 42 of the background document for CPG I, "Items Designated in the Comprehensive Procurement Guideline—Supporting Analyses," April 1995, which is available from the RCRA Docket or electronically, through EPA's World Wide Web site at http://www.epa.gov/epaoswer/non-hw/procure/comp.htm).

Because the purpose of the government's buy-recycled program is to develop markets for recovered materials, EPA is reluctant to exclude acrylic latex paints from the scope of the latex paint designation. Rather, EPA believes that procuring agencies requiring acrylic latex paints should determine periodically whether these paints containing recovered materials are available in order to encourage the recovery of this type of paint from the waste stream. Further, EPA notes that during development of CPG II, neither the Army nor any other federal agency requested that EPA limit the scope of the designation. Therefore, in the final CPG II, EPA is designating reprocessed and consolidated latex paints and not excluding acrylic latex paints.

Comment: In the draft RMAN II, EPA recommended that procuring agencies use GSA specification TT-P-2846 for "recycled" latex paint. This specification sets a VOC limit of 200 grams per liter. NPCA noted that EPA had proposed a higher VOC level in its Architectural and Industrial Maintenance (AIM) coatings rule.

Response: EPA proposed VOC standards for "architectural coatings" in 1996. [See "National Volatile Organic Compound Emission Standards for Architectural Coatings" (61 FR 32729, June 25, 1996 and 61 FR 46410, September 3, 1996)]. As the commenter noted, this rule establishes VOC limitations for many different types of coatings, including interior and exterior wall coatings. For flat interior and exterior coatings, the VOC content is limited to 250 grams per liter (g/l), and for non-flat interior and exterior coatings, the VOC content is limited to 380 g/l. The standard also provides a VOC credit for "recycled" architectural coatings to account for the postconsumer content of this product. In all cases, the VOC limits are higher than the 200 g/l standards used in the GSA specification for latex paint containing postconsumer material.

Because the VOC content levels in the AIM rule did not become effective until April 1, 1997, the existing GSA latex paint specification recommended in the draft RMAN II did not reflect the new EPA emission standards. In recommending the GSA specification, EPA was meeting its statutory obligation to provide procurement guidance to procuring agencies. It was not EPA's intent to establish one VOC level in the RMAN II and a different VOC level in the AIM rule.

EPA believes that NPCA has pointed out an area for possible confusion, because the AIM rule recently became effective and agencies are revising their specifications accordingly. EPA believes that the AIM rule, not the RMAN, is the appropriate vehicle for establishing VOC limitations for reprocessed and consolidated latex paints. Therefore, in the final RMAN II, EPA is deleting reference to the VOC standard set in the current GSA specifications.

Comment: NPCA commented that EPA must ensure that there is adequate quality control for collected paint used in reprocessed paint.

Response: While EPA agrees with NPCA that there must be adequate quality control for collected paint, EPA does not agree that it is the Agency's responsibility to ensure it exists. Rather, quality control is provided by the collection points (e.g., household hazardous waste collection programs), the paint manufacturers, and the specifications used by purchasing agencies. For example, reprocessed paint manufacturers use a variety of means to control the quality of recovered paint used in their products, from working with municipalities and their contractors to assure careful sorting of paints during household hazardous waste collections, to testing of the materials both before and after reprocessing. In addition, specifications, such as GSA's TT-P-2846, require product testing for such parameters as prohibited materials, condition of the paint, accelerated storage, odor, and biological growth. Because quality control is already being addressed by collection programs, manufacturers, and the GSA specification, EPA does not believe that it is necessary to add quality control recommendations to the latex paint recommendations in the final RMAN II.

Comment: NPCA commented that recovered latex paint may be contaminated by bacteria and that, therefore, EPA needs to ensure that appropriate quality control testing is performed on leftover paint which is used in consolidated or reprocessed latex paint.

Response: EPA disagrees. As noted in the previous response, it is ultimately the responsibility of the paint manufacturer—or, in the case of consolidated paint, those responsible for the consolidation—to assure the quality of the recovered material used to produce consolidated or reprocessed latex paint. Quality control also is provided by municipalities and their contractors operating household hazardous waste collection programs and should be required by purchasing agencies.

Comment: In its July 28, 1997, supplemental comments, NPCA suggested that EPA recommend that procuring agencies should only purchase reprocessed latex paint when they are

provided with hazard communication information that conforms to Federal standards. NPCA stated that it had reviewed Federal Standard 313 for developing Material Safety Data Sheets (MSDS) and current MSDSs for reprocessed latex paint provided by GSA. NPCA believes that the sample MSDSs do not conform to Federal Standard 313.

Response: EPA shares NPCA's concern that the purchase and use of reprocessed and consolidated latex paint should not result in health, safety, or environmental concerns. EPA believes that any concerns about the adequacy of MSDSs should be discussed with and resolved by GSA, which is the item manager for paints.

EPA notes that health and safety considerations were discussed in the background document for the proposed CPG II. This discussion is repeated below under Technically Proven Uses for reprocessed and consolidated latex paint. EPA had found that neither GSA nor the Office of Lead-Based Paint Abatement of the Department of Housing and Urban Development (HUD) is aware of any health, safety, or indoor air quality issues regarding reprocessed and consolidated latex paints.

Comment: NPCA noted that reprocessed and consolidated latex paints are not universally available in the United States.

Response: EPA has never limited its designations only to items that are “universally” available or immediately available in every part of the United States. Because the purpose of the federal buy-recycled program is to develop markets for products containing recovered materials, it has always been understood that these items might not be available to all procuring agencies in all areas of the country at all times. Nor does RCRA specify universal availability as a criteria for EPA to consider when designating items. Rather, it is expected that, as procuring agencies seek to purchase products containing recovered materials, these items will become more widely and universally available as manufacturers and distributors react to market demand. For this reason, RCRA Section 6002 provides that procuring agencies are not required to buy an EPA-designated item containing recovered materials if that item is not available within a reasonable time. The following are estimates of how much reprocessors are currently producing and/or the amount of their company’s annual capacity:

- **E Coat** reprocessed about 50,000 gallons of paint in 1996, with an annual production capacity of between 70,000 to 80,000 gallons per year.

- **Paint Solutions** has the capacity to produce more than 500,000 gallons of reprocessed latex paint.

- **Rassmussen Paint** estimate its capacity at about 100,000 gallons per year.

Comment: NPCA commented that, because contracting officers must document agency decisions not to purchase an EPA-designated item, there will be a paperwork burden on agencies

and unnecessary delays and costs to government painting projects.

Response: The August 22, 1997 amendment to the FAR requires agencies to document, in writing, decisions not to purchase EPA-designated items (48 CFR 23.404(b)(3), 62 FR 44811, August 22, 1997). While this requirement adds to the paperwork associated with an acquisition, it also requires agencies to carefully consider whether an EPA-designated item is available and meets their reasonable performance needs. EPA does not believe that it will create unnecessary delays and costs to government painting projects. Agencies have several mechanisms that can be used to obtain reprocessed or consolidated latex paints or to discern the availability of these products, including purchasing these items through GSA, contacting manufacturers listed in the vendor lists developed by EPA or in recycled products guides, developing potential bidders lists, and holding pre-bid conferences.

Comment: NPCA commented that EPA failed to examine the true costs of using reprocessed latex paint, because it is "likely" that more coats of reprocessed paint would be required and "it seems likely that" more frequent repainting will be required where reprocessed latex paint is used. NPCA provided no documentation to substantiate these claims.

Response: The information available to EPA from product research, product testing by CalPoly and USACERL, and users indicates that reprocessed latex paints provide the same coverage as virgin latex paints and do not require more frequent repainting. According to the CalPoly research report and additional research conducted by EPA, reprocessed and consolidated paints meet specifications for sag resistance (a measure of a paint's tendency to run on a vertical surface), contrast ratios (ability to hide the underlying surface), and scrub resistance (an indication of the resistance of a paint film to repeated washing or scrubbing). None of the users contacted by EPA had experienced problems with paint coverage or durability. Based on this testing and use information, EPA believes that procuring agencies will not incur additional costs from extra or more frequent coats of paint.

Comment: NPCA also commented that EPA's recommendations should not be limited to the use of postconsumer paint. Instead NPCA believes that, the recommended content levels for both consolidated and reprocessed latex paint should be recovered materials content levels. This would allow the use of preconsumer latex paint that is returned by paint retailers, distributors, contractors, and consumers to count toward the RMAN content level requirements. NPCA noted, however, that it does not have specific information regarding the extent to which recovered paint is sent to a paint reprocessor rather than back to the original manufacturer or the percentage of recovered latex paint that is preconsumer.

Response: At this time, postconsumer latex paint is being collected through municipal household hazardous waste collection programs and is used for consolidation and/or reprocessing. Government procurement of these items will help to develop markets for the recovered postconsumer latex paint. Therefore, EPA is focusing on postconsumer latex paint in the recommendations in the final RMAN II. If EPA receives information documenting that there also

are barriers to increased usage of preconsumer latex paint, the Agency will consider adding recommendations for total recovered paint content in a future revision to the RMAN.

Comment: The Wisconsin Department of Transportation requested a clarification regarding whether the proposed latex paint designation applies to pavement marking paint products.

Response: The proposed designation is not intended to apply to pavement marking paint products.

Comment: GSA recommended that EPA state in the RMAN II that "GSA has prepared Federal Specification TT-P-2846, Paint, Latex (Recycled with Postconsumer Waste), as the quality control document for recycled latex paint." GSA also provided the national stock numbers for semi-gloss and flat latex paints meeting this specification and provided ordering information for a GSA brochure about latex paint containing recovered materials.

Response: EPA is revising the recommendations for latex paint specifications and sources in Section C-6 of the final RMAN II to include this information.

Comment: Four commenters noted that EPA's draft recommended content levels for reprocessed paint are not suitable for white paint, off-white paint, or pastels that require a white base. The commenters stated that the majority of paint collected in municipal household hazardous waste programs is tinted or colored, and that it is not possible to remove the color from these paints during paint reprocessing. At the 50 percent postconsumer content level recommended by EPA, a very small quantity of reprocessed white or off-white latex paint would be available to consumers. Two of the commenters recommended a 20 percent postconsumer content level for white, off-white, and pastel colors requiring a white base. A third commenter recommended limiting the recommendations to light, medium, and dark colors only.

Response: EPA conducted additional research on the postconsumer recovered content of white, off-white, and pastel colored reprocessed latex paint and found that, because limited quantities of white postconsumer latex paint are collected, it is more difficult to produce lighter colored paints with higher postconsumer content levels. While there are instances in which white paint is collected separately, most collection programs do not collect white paint separately from pastels. Thus, while some reprocessors are able to produce white latex paint with high postconsumer content, the volume of white paint at higher levels is limited. Four reprocessed paint companies and several municipalities commented that EPA should recommend a 20 percent postconsumer content level for white, off-white, and pastels.

Based on the information submitted by commenters and EPA's additional research, EPA is adding postconsumer recommendations in the final RMAN II for white, off-white, and pastel reprocessed paints. EPA is recommending that these paints contain 20 percent postconsumer material. EPA is retaining the 50 to 99 percent postconsumer recommendation for gray, brown,

earth tones, and other dark colors. EPA will consider increasing the recommendation for white, off-white, or pastel paints in the future if information is received that suggests supplies of recovered white latex paint are increasing and there is evidence of increased postconsumer content for these colors.

3. Rationale for Designation

EPA believes latex paint made with recovered materials satisfies the statutory criteria for selecting items for designation.

a. Use of Materials in Solid Waste

As discussed in Appendix V, latex paint is a significant component of MSW. Although most latex paint is discarded in MSW, some leftover postconsumer paint is collected through household hazardous waste (HHW), paint-only, and curbside collection programs and at retail sites. Not all HHW programs collect latex paint but, in programs that do, latex paint frequently accounts for more than half of all paint materials received. A few paint retailers and some reprocessed and consolidated paint manufacturers accept leftover paint from painting contractors. Currently, large end users such as government agencies do not have existing paint collection contracts and must make special arrangements for recycling or disposing of leftover paints, most of which is managed as waste.

b. Technically Proven Uses

As stated above, consolidated latex paint is most often used in limited exterior applications. Reprocessed latex paint is available in a consistent set of colors and finishes from GSA and from manufacturers. Several manufacturers offer a wide range of colors and can custom match paint for large orders. GSA's specification for latex paint, TT-P-2846, covers three types (interior, exterior, and interior/exterior), three classes (flat, eggshell, and semigloss) and three grades (A: 40 percent minimum volume solids, B: 30 percent minimum volume solids, and C: utility paint for graffiti abatement). GSA requires 50 percent postconsumer content for Grades A and B and 90 percent postconsumer content for Grade C. GSA has two types of recycled paint on schedule: GSA Class 1 (flat) paint in 10 colors and Class 3 (semi-gloss) paint in 13 colors. GSA's specification for all grades of reprocessed and consolidated latex paint also contains requirements for freeze-thaw stability, application properties, odor, dry time, consistency, VOC content, and contrast ratio. For Grades A and B, the specification sets additional requirements for alkali resistance, flexibility, scrub resistance, biological growth, total solids, fineness of dispersion, and gloss. Although GSA does not currently stock reprocessed and consolidated paint in eggshell, a finish that is preferred by some agencies, GSA vendors are encouraged to supply this finish.

According to a GSA contact, over 69 military bases and other federal purchasers as well as 28 private or local government agencies have purchased reprocessed and consolidated latex

paint through GSA. Almost half of them have returned to purchase more. Among the agencies that have used reprocessed and consolidated paint is GSA's Paint and Chemical Commodity Center in Auburn, Washington, which painted its own facility in 1995 with excellent results. According to the contact, the paint performs just as well as virgin paint.

In October 1993, the Department of the Navy's Chief of Naval Operations office issued a memorandum encouraging the use of reprocessed and consolidated latex paint for maintenance of facilities whenever possible. The U.S. Coast Guard purchased reprocessed latex paint through GSA for application in offices and staff living quarters and was extremely pleased with the product. The paint provided excellent coverage, was similar in odor to virgin paint, and cost less. In addition, color consistency and overall appearance were equal to that of virgin paint.

Performance

According to information obtained by EPA, reprocessed and consolidated paint lasts as long, covers as well, and produces as smooth a finish as comparable virgin paint. It also can be applied with a sprayer. For example, a study by California Polytechnic Institute to assess the performance of reprocessed and consolidated paint evaluated representative recovered and consolidated paint samples for scrub resistance, sag resistance, contrast ratio, reflectance, gloss, density, percent solids, grind, flexibility, and alkali resistance. All samples met or exceeded study parameters except for one utility paint formulation. EPA is also aware of one paint manufacturer that surveyed large quantity users of reprocessed and consolidated latex paint prior to stocking it. According to the manufacturer, very few performance problems were reported and were likely related to surface preparation. A national contractor who had used thousands of gallons of paint in many different commercial applications stated that the reprocessed and consolidated paint covered and spread well and also worked well with a sprayer. According to recent information obtained by the EPA, spray application of reprocessed and consolidated latex paint poses few, if any, problems. In general, most manufacturers stated that spray application is not a problem when the paint is clean and had been properly filtered. A representative of one paint company stated, however, that some people recommend not using sprayers with reprocessed and consolidated latex paint, because there had been incidents where spray nozzles had become clogged. To avoid this problem, one paint reprocessor recommended using a larger diameter spray tip. In addition to satisfactory spraying capacities, consolidated and reprocessed latex paint require essentially the same number of paint coats as virgin paints do. According to recent information obtained by the EPA, most consolidated and reprocessed paint can also be used in the same applications as virgin latex paint.

The Portland, Oregon, Metropolitan Service District contracted with a firm to test interior and exterior reprocessed latex paint for performance criteria including weathering. The recovered paint met all established performance requirements and exhibited the same weatherization characteristics as commercial virgin paint.

The Paint Technology Center at the U.S. Army Construction Engineering Research

Laboratories is testing the performance of reprocessed and consolidated latex paint for such characteristics as scrubability, hiding power, and resistance to weather exposure. The results of this study will be released in a final report in the Fall of 1997. However, preliminary results indicate that reprocessed and consolidated latex paint performs as well as new latex paint when used for interior and exterior applications.

Price

EPA's research indicates that the price paid by consumers for recovered and consolidated paint is generally significantly lower than the price of comparable virgin latex paint, even though paint processors typically charge a $2 to $4 per gallon fee to municipalities for handling paint recovered in municipal collection programs. Some reprocessed and consolidated paint manufacturers do not charge for reprocessing but require that the communities buy back paint that the manufacturer cannot sell. As demand for reprocessed and consolidated latex paint increases, however, reprocessed and consolidated paint manufacturers expect to reduce or eliminate their reprocessing fees. In fact, some recovered paint manufacturers supplying GSA have already eliminated fees for white paint recovered for reprocessing into recycled paint under the GSA contract. According to a manufacturer, buy back provisions are less likely to be eliminated but have proved difficult to enforce.

c. Pollution Prevention Considerations

EPA researched health and safety issues associated with the handling and use of reprocessed and consolidated latex paint and found that neither GSA nor the Office of Lead-Based Paint Abatement of the Department of Housing and Urban Development (HUD) is aware of any current health, safety, or indoor air quality issues regarding reprocessed and consolidated latex paint. In the study conducted by the California Polytechnic Institute, reprocessed and consolidated latex paint samples were tested for metals, cyanide, volatile and semi-volatile compounds, and polychlorinated biphenyls (PCBs). These contaminants were compared with GSA's, the State of California's Occupational Safety and Health Administration, and Green Seal's proposed overall environmental standards. In general, the paints tested met all regulatory thresholds and product specifications.

Mercury is often found in older exterior paints. Paint manufacturers voluntarily agreed to remove all mercury from interior latex paint by August 20, 1990, and ceased using mercury in exterior paint in 1991. For consolidated paint, EPA recommends that paint exceeding 200 parts per million (ppm) mercury content should be used for exterior applications only. The CalPoly study found most collected paints would be considered a hazardous waste in California (if they were to be disposed of) because of California's strict 20 ppm mercury threshold. The study also found that the average for all paint samples was approximately 70 ppm, well below EPA's recommended limit of 200 ppm. Suppliers have been able to certify that their latex paint meets the GSA mercury requirements. All of the recovered and consolidated latex paints tested also met California limits for lead content.

Over the past three years, EPA's Office of Pollution Prevention and Toxics' (OPPT's) Economics, Exposure, and Technology Division has been evaluating currently available virgin latex paint for indoor air pollutant concerns relating to worker exposure. OPPT recommends that interior and exterior postconsumer recovered latex paints be sorted separately and consolidated to avoid contaminating interior recovered and consolidated paints with exterior paints that are slightly more likely to contain potentially hazardous biocides or other additives. Additionally, OPPT recommends that for interior paint, collection facilities reject any can for consolidation that appears as if it may have had other hazardous products poured into it in order to reduce potential exposure to people who use the consolidated latex paint indoors.

d. Impact of Government Procurement

In 1995, government agencies purchased or used appropriated federal funds to purchase latex paint. GSA purchased $61.7 million of paint for the federal government in 1995, which is approximately 10 percent of the federal market share for paint. Approximately $4 million worth of the GSA paint purchases were for latex paint. The vast majority of paint purchased for federal, state, and local government use is purchased locally or through other contracts.

Reprocessed and consolidated latex paint is currently available on GSA's Federal Supply Schedule. In 1994, GSA sold 310 gallons of flat reprocessed and consolidated latex paint and 1,040 gallons of semigloss. As of May 1996, one of the two GSA suppliers had sold over 1,500 gallons of flat reprocessed and consolidated latex paint.

4. Designation

EPA is designating (1) consolidated latex paint for covering graffiti and (2) reprocessed latex paint used for interior and exterior architectural applications such as wallboard, ceilings, and trim; gutter boards; and concrete, stucco, masonry, wood, and metal surfaces. This designation does not preclude a procuring agency from purchasing oil-based paints or latex paints for specific needs. It simply requires that a procuring agency, when purchasing latex paint for the specific uses described here, purchase paint with recovered materials when the paint meets applicable specifications and performance requirements.

5. Preference Program

In the draft RMAN II, EPA recommended that procuring agencies establish minimum content standards for consolidated and reprocessed latex paints. EPA recommended 100 percent postconsumer content for consolidated latex paints and 50-99 percent postconsumer content for darker color reprocessed latex paints. Based on additional research conducted by EPA and comments received on the draft recommendations, EPA has determined that the reprocessed paint recommendations are too high for white, pastel, and white-based paints. Therefore, in the final RMAN II, EPA has added a separate content recommendation for these colors. Table 6 reflects the revised content recommendations as described in Section VIII.C.2 of this document.

Table 6

Final Recovered Materials Content Recommendations for Latex Paint

Product	Material	Postconsumer Content %
Consolidated Latex Paint	Left-over latex paint	100
Reprocessed Latex Paint: Gray, Brown and Earth Tones	Left-over latex paint	50 to 99
Reprocessed Latex Paint: White, Off-White, and Pastels	Left-over latex paint	20

6. Background for Recommendations

Latex (water-based) paint is widely used for architectural purposes for residential and commercial buildings. Latex paint is also used for land-based vehicles, equipment, and machinery; marine and air crafts; furniture; traffic marking; and other special purposes, such as swimming pools and blackboards. It is available in many colors and in semi-gloss, eggshell, flat, satin, and high gloss finishes for interior and exterior applications. Of these uses, reprocessed and consolidated latex paint is being used for interior and exterior architectural applications. EPA requested additional information on the use of latex paint for special purposes, but no information was submitted.

As defined in Section VI of this document, "postconsumer material" means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. For the purposes of the RMAN II, postconsumer latex paint, therefore, is latex paint that, after being purchased for use by an end-user (such as a homeowner or a painting contractor), is left over, excess, or otherwise unused as intended, and is collected for recycling.

Paint reprocessors and consolidators handle leftover latex paint in one of two ways, each of which produces a different end product. The first, paint reprocessing, produces consistent characteristics in recovered or consolidated latex paint that are comparable to virgin latex paint used for exterior and interior architectural applications. The second type, paint consolidation, involves blending postconsumer paint, resulting in a mixture that contains 100 percent postconsumer content with characteristics that vary significantly from batch to batch. Consolidated paint is used in limited exterior applications, such as graffiti abatement, and is normally donated for use by the consolidator.

EPA is aware of at least seven manufacturers producing reprocessed or consolidated latex paint with postconsumer content ranging from 50 to 99 percent. EPA believes that some of the research data provided by reprocessors denoting postconsumer content may actually be recovered materials content as defined in the RMAN (recovered materials include both pre- and post-consumer content). In addition, these content levels represent a darker range of colors, such as gray, brown, and other earth tones, and generally do not include white and other light colors. According to commenters and information obtained by EPA, white, off-white, and pastels should be limited to 20 percent postconsumer content due to the limited availability of white postconsumer latex paint. Manufacturers stated that to produce white, off-white, and pastels paints with postconsumer content, collection programs would have to collect these paints separately. Yet, according to representatives of four reprocessed paint companies and several community collection programs, most collection programs do not collect white paint separately from pastels, and it is not possible to remove the color from these paints during reprocessing.

Three manufacturers of reprocessed paint stated they distribute small amounts of white, off-white, and pastel reprocessed latex paint with 50 to 100 percent postconsumer content. A representative of one of these companies admitted, however, that supplies of white or light-colored reprocessed and consolidated paints are limited. For example, if a federal agency ordered more than 3,000 to 4,000 gallons of white or lighter-colored reprocessed latex paint, the paint company would have to supply it over a 2- to 3-month period.

Reprocessed paint is available nationwide through GSA and directly from manufacturers. Most reprocessors sell regionally, because long distance shipping imposes high freight costs. Several paint reprocessors have indicated an interest in establishing "closed loop" arrangements with municipalities and federal facilities for reprocessed paint made from collected postconsumer paint. Most latex paint is purchased by federal agencies at local retail paint stores. Table 7 presents information obtained from paint latex paint reprocessors.

Table 7

Recovered Materials Content of Reprocessed Latex Paint

Product	Material	Postconsumer Content %
Reprocessed Latex Paint	Left-over latex paint	Company A: 90 to 98 Company B: 50 to 80 Company C: 50 to 90 Company D: 50 to 60 Company E: 90+ Company F: 60 to 80 Company G: 90 to 99

7. Specifications

GSA has developed specifications for reprocessed and consolidated paint. GSA specification TT-P-2846 covers three types of latex paint (interior, exterior, and interior/exterior), three classes (flat, eggshell, and semi-gloss) and three grades (A: 40 percent minimum volume solids, B: 30 percent minimum volume solids, and C: utility paint for graffiti abatement). GSA requires 50 percent postconsumer content for Grades A and B and 90 percent postconsumer content for Grade C. GSA has two types of recycled paint on schedule: GSA Class 1 (flat) paint in 10 colors and Class 3 (semi-gloss) paint in 13 colors. GSA's specification for all grades of recovered or consolidated latex paint contain requirements for freeze-thaw stability, application properties, odor, dry time, consistency, VOC content, and contrast ratio. For Grades A and B, the specification sets additional requirements for alkali resistance, flexibility, scrub resistance, biological growth, total solids, fineness of dispersion, and gloss. Reprocessed and consolidated latex paint meeting TT-P-2846 is available through the GSA Federal Supply Service. A complete list of paint type stock numbers is listed below and can also be obtained from the GSA.

National Stock Numbers	**Colors**
Semi-gloss	FEDSTD 595B
8010-01-380-2400	Beige #27769
8010-01-380-2405	Blue-gray #26420
8010-01-380-2438	Sand-green #26307
8010-01-380-2382	Sand-gray #26306
8010-01-380-2331	Gray #26134
8010-01-380-2429	Dark gray #26081
8010-01-380-2338	Green #24491
8010-01-380-2379	Sand #23690
8010-01-380-2332	Tan #23617
8010-01-380-2417	Tan #20372

8010-01-380-2353	Sand-yellow #20318
8010-01-380-2363	Dark brown #20140
8010-01-380-2447	Red brown #20100

Flat	FEDSTD 595B color No.
8010-01-380-3293	White #37886
8010-01-380-2425	Beige #37769
8010-01-380-2442	Blue-gray #36650
8010-01-380-2381	Gray #36134
8010-01-380-2367	Dark gray #30681
8010-01-380-2396	Blue #35526
8010-01-380-2366	Green #34491
8010-01-380-2421	Sand #33690
8010-01-380-2351	Tan #33617
8010-01-380-2416	Dark brown #30140

During development of the draft RMAN II, the U.S. Army Corps of Engineers expressed concern that GSA specifications for reprocessed latex paint did not cover all the types of latex paint used by federal agencies. Agencies would therefore be unable to specify a specific type of latex paint such as acrylic latex, vinyl latex, or modified acrylic latex. GSA Specification TT-P-2846, Paint, Latex (Recycled with Postconsumer Waste) is the current quality control document for reprocessed and consolidated latex paint. As the Army Corp noted, this specification is intended for interior and exterior architectural uses of latex paint but does not contain specific requirements for acrylic or vinyl latex paints. The Army Corps tested these paints against TT-P-2846 and the GSA specifications for interior and exterior latex paints and found that the paints meet TT-P-2846, the interior paint specification, and the exterior paint tests conducted to date.

IX. TRANSPORTATION PRODUCTS

In CPG II, EPA proposed to add the following transportation products: parking stops, channelizers, delineators, and flexible delineators. The draft recommendations for purchasing these items are found in Sections D-2 and D-3 respectively, in the draft RMAN II. The following sections provide a summary of the comments received and the Agency's response.

A. General

Comment: The Wisconsin Department of Transportation expressed concern about the quality control of items made from recycled plastic. The commenter stated that ASTM specifications should be developed that address strength, flexibility, and other factors that will ensure consistent quality of recovered materials.

Response: In the draft RMAN II, EPA identified several specifications that can be used when purchasing traffic control devices containing recovered materials, including the Federal Highway Administration's *Manual on Uniform Traffic Control Devices* and specifications used by two states. The state specifications address performance as well as recovered materials content. Within ASTM, test methods and material performance standards for plastic lumber were recently completed. These methods cover procedures to measure density, compressive properties, flexural properties, and creep. Therefore, EPA believes that sufficient specifications exist and are available to enable procuring agencies to purchase the designated transportation products meeting their performance needs.

B. Parking Stops

1. Background

In §247.13(b) of the proposed CPG II, EPA proposed to designate parking stops made from concrete or containing recovered plastic or rubber. In Section D-2 of the accompanying draft RMAN II, EPA recommended that parking stops contain the levels of recovered materials listed in Table 8.

Table 8

Draft Recovered Materials Content Recommendations for Parking Stops

Material	Recovered Materials Content (%)
Plastic and/or Rubber	100
Concrete Containing Coal Fly Ash	Generally, 20 to 30, but could be up to 40; 15 when used as a partial cement replacement as an admixture in concrete.
Concrete Containing Ground Granulated Blast Furnace Slag (GGBF Slag)	25 to 70

EPA received no comments on the proposed designation of parking stops. EPA also received no comments on the recommendations for parking stops containing recovered plastic or rubber.

EPA requested information on the use of coal fly ash and GGBF slag in parking stops and whether the recovered materials are used incidentally or deliberately in this application. EPA also requested information about the technical performance and availability of these types of parking stops. Commenters submitted information about concrete parking stops. EPA also conducted additional research into the use of coal fly ash and GGBF slag in concrete parking stops. The comments and the Agency's response are summarized in the following subsection.

Based on EPA's research in support of the proposed designation of parking stops, the Agency is designating parking stops in the final CPG II. EPA is including the draft recommendations for parking stops containing recovered plastic or rubber in the final RMAN II. In addition, as explained below, EPA is including specific content recommendations for concrete parking stops in Section D-2 of the final RMAN II, rather than referring agencies to the recommendations for cement and concrete in Section C-3 of RMAN I.

In the background documents for the proposed CPG II and draft RMAN II, EPA noted that coal fly ash is used in parking stops by some precast products manufacturers. EPA also stated that it has reason to believe that parking stops could be made from concrete containing ground granulated blast furnace (GGBF) slag. After further research, EPA notes that it is common practice for a concrete ready mix manufacturer to pour excess concrete into precast block forms and molds, including molds for parking stops, temporary barriers, and retaining walls. Some ready mix manufacturers who use coal fly ash will accumulate a stockpile of parking stops containing coal fly ash. Similarly, some precast companies use coal fly ash or GGBF slag to produce parking stops where these materials are available. According to the American Coal Ash Association (ACAA), it is common knowledge within the cement industry that one of the benefits of using coal fly ash in the manufacture of parking stops is that it produces a more durable and

faster drying product. In addition, there are no installation adjustments required for parking stops containing coal fly ash.

2. Summary of Comments and Agency's Response

Comment: ACAA and the Utility Solid Waste Activities Group (USWAG) commented that EPA should include parking stops containing coal fly ash. Both ACAA and USWAG suggested a 20 to 40 percent coal fly ash content level. They both provided industry information about the availability of coal fly ash.

Response: In the draft RMAN II, EPA referred readers to Section C-3 of RMAN I, which states that replacement rates of coal fly ash for cement in the production of blended cement generally do not exceed 20 to 30 percent, although coal fly ash blended cements may contain up to 40 percent coal fly ash by weight, according to ASTM C 595 for cement types IP and I (PM).

The current version of this specification, ASTM C595M-95 Standard Specifications for Blended Hydraulic Cements, specifies a 15 to 40 percent pozzolan content in blended portland pozzolan cement. Coal fly ash is a pozzolan. The commenter's suggested content recommendation, thus, falls within the consensus for blended hydraulic cements. To make it easier for readers to find this recommendation, EPA is changing Table D-2 in the final RMAN II to recommend a 20 to 40 percent content range for concrete parking stops containing coal fly ash and a 25 to 70 percent range for GGBF slag, consistent with the provisions of ASTM C595.

3. Rationale for Designation

EPA believes that parking stops satisfy the statutory criteria for selecting items for designation.

a. Use of Materials in Solid Waste

Parking stops are made with postconsumer and recovered HDPE (from milk jugs, water bottles, and other containers), mixed plastics, and rubber (from used tires), all of which constitute a significant portion of municipal solid waste, as discussed in Appendix V of this document. Additional information obtained by the EPA, shows that concrete parking stops can also be made with coal fly ash and GGBF slag. According to the National Precast Concrete Association, ACAA, the Ready Mix Concrete Association, and several ready mix manufacturers, concrete containing coal fly ash or GGBF slags, both of which are previously designated items, is used in the manufacturing of parking stops by some manufacturers. Also, according to representatives of the National Slag Association, GGBF slag is ground and used in the manufacture of parking stops in areas of the country where GGBF slag is readily available. Appendix V of this document discusses the generation and recovery of coal fly ash and GGBF slag.

b. Technically Proven Uses

EPA identified various manufacturers and vendors of parking stops containing recovered materials, including postconsumer HDPE and other plastics, postconsumer rubber from scrap tires, and coal fly ash. The majority of parking stops containing coal fly ash are manufactured by small precast companies. In general, most parking stops are made from concrete left over from construction-related jobs.

EPA is not aware of any national specifications or standards that either require or preclude the use of recovered materials in parking stops. Some users may require parking stops to be a specific color. The National Park Service, for example, requires brown parking stops but does not specify the exact shade of brown. Blue is becoming popular for handicapped-space parking stops, but there is no official standard for the color.

Manufacturers and distributors contacted by EPA claim that the plastic and rubber recovered materials content stops are more durable than traditional concrete stops. According to these sources, concrete stops are susceptible to collision and weather damage, whereas recovered plastic and rubber stops are resistant to sun, salt, water, and collision damage. In addition, recovered plastic or rubber stops need not be painted and repainted, because the color is part of the material itself. One company claims that the plastic and rubber recovered content stops last four to five times longer than concrete stops, and several companies offer long-term warranties. Traditional concrete parking stops weigh between 250 and 300 pounds, while recovered plastic or rubber stops weigh about 30 pounds. The lighter-weight plastic and rubber type can reduce the number of workers needed to install, relocate, and remove each stop and also reduce the risk of worker injury.

One user of recovered HDPE parking stops at a public university experienced cracking during extremely cold periods in the winter. The problem, however, was attributed to incorrect installation. The cracking ceased once the installers began leaving ample room for the plastic to shrink around the pin fasteners.

Based on EPA's research, concrete stops generally cost between $12 and $25 each, while recovered materials content plastic and rubber stops generally cost between $22 and $35 each, depending on the color and quantity purchased. The cost differential may become less significant, however, when installation, maintenance, and replacement costs are taken into account. Several companies and users claim that the lower installation, maintenance, and replacement costs more than make up for the higher initial purchase price.

c. Impact of Government Procurement

Although EPA received no comments in response to its request for comment on the number of parking stops installed or purchased by procuring agencies, it is known that GSA contracts for parking stops as part of larger construction-related jobs. GSA requires contractors

to sign a certification stating that they are supplying products that meet EPA's procurement guidelines where appropriate.

The U.S. Post Office in Henderson, Colorado, installed recovered plastic parking stops and has found maintenance and installation costs to be lower than with conventional concrete stops because of the products' durability and light weight and because the cost of the mounting hardware was included in the price of the stops.

EPA has information indicating that the National Park Service and various military bases also procure parking stops, as well as state departments of transportation and park authorities. EPA’s request for specific information about additional users of recovered materials content elicited no responses.

The Department of Defense (DOD) has awarded a multi-year construction contract to repair and maintain the parking lots and access roads of 4 Washington, DC area facilities, including the Pentagon. The contract includes a specification for parking stops manufactured with 100 percent recycled material, and DOD is considering using plastic, rubber, or concrete parking stops with recovered content. DOD plans to replace parking stops on an as needed basis in the more than 8,700 parking spaces at these facilities.

4. Designation

EPA is designating parking stops containing recovered concrete, rubber, coal fly ash, GGBF slag, and/or plastic. This designation does not preclude a procuring agency from purchasing parking stops manufactured from other materials. It simply requires that a procuring agency, when purchasing parking stops made from concrete, rubber, and/or plastic, purchase these items with recovered materials when these items meet applicable specifications and performance requirements.

5. Preference Program

EPA is recommending the draft RMAN recommendations in the final RMAN II. For the convenience of the reader, in the final RMAN II, EPA is including content recommendations for coal fly ash and GGBF slag. Table 9 shows the final recommendations for these and plastic and rubber recovered materials in parking stops.

Table 9

Final Recovered Materials Content Recommendations for Parking Stops

Material	Recovered Materials Content (%)
Plastic* and/or rubber	100
Concrete Containing Coal Fly Ash	Generally, 20 to 30, but could be up to 40. 15 when used as a partial cement replacement as an admixture in concrete.
Concrete Containing GGBF Slag	25 to 70

* Parking stops made with recovered plastics may also include other recovered materials such as sawdust, wood, or fiberglass. The percentage of these materials contained in the product would also count toward the recovered materials content level of the item.

6. Background for Recommendations

Parking stops are used to mark parking spaces and to keep parked vehicles from rolling beyond a designated parking area. The stops are usually 6 feet long and 4 to 6 inches wide and deep. Two widely spaced vertical holes accommodate pin fasteners that hold the stop to the parking surface. Traditional stops are made of concrete and weigh between 250 and 300 pounds. Most concrete stops are made from concrete left over from other construction-related jobs. The material is poured into a mold, left to harden, and sold. Other concrete stops are more complex, with internal support structures, but these types are not the industry standard.

While most parking stops are made from concrete, parking stops are available made from recovered plastics or rubber. They weigh approximately 30 pounds and are the same dimensions as concrete stops. Many stops are reinforced with metal bars. Most stops are molded products, but one manufacturer can cut longer stops onsite to fit the exact dimensions of the parking space. EPA identified various manufacturers of parking stops containing postconsumer and other recovered plastics, and postconsumer rubber from scrap tires. Three of these manufacturers also use sawdust and/or wood chips to make a composite parking stop. One additional manufacturer uses fiberglass in combination with plastic.

Table 10 provides information on the availability of parking stops made of recovered materials.

Table 10

Recovered Materials Content of Parking Stops

Product	Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Parking Stops	HDPE	Company 1: 100 Company 2: 100 Company 3: 100 Company 4: 95 Company 5: 90	100 100 100 100 100
	Unknown plastic and rubber	Company 6: 100 Company 7: 100 Company 8: 80	100 100 80
	Rubber	Company 9: 100 Company 10: 66 Company 11: 100	100 66 100
	HDPE	Company 12: unknown	10 to 100
	Polyethylene (PE)	Company 13: 100	100
	LDPE, HDPE, Linear Low-Density Polyethylene (LLDPE), PP	Company 14: 90 to 95 Company 15: 90 to 95	100 100
	LLDPE, PP	Company 16: 15 (LLDPE)	100 (85 PE)
	LDPE, nylon, and vinyl	Company 17: 50 (LDPE), 25 (nylon and vinyl)	100
	HDPE, PP	Company 18: 100	100
	HDPE, PP, Polyethylene Terephthalate (PET)	Company 19: 100	100
	LDPE, HDPE, PP, PET, Polystyrene (PS)	Company 20: up to 100	up to 100

Product	Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
	LDPE, HDPE, PET, PE	Company 21: 97	100
	LDPE, HDPE, PP, PET	Company 22: 97	97
	LDPE, HDPE	Company 23: Unknown	100
	PP, PS, PE	Company 24: 10 - 60	100
Parking Stops	Unknown plastics	Company 25: 100 Company 26: 95 Company 27: 100 Company 28: 50 Company 29: 50 Company 30: 100 Company 31: 100 Company 32: up to 60 Company 33: 40 to 60 Company 34: 100 Company 35: 100 Company 36: 100 Company 37: 90 Company 38: Unknown Company 39: 100 Company 40: 100 Company 41: 100 Company 42: 30 to 50 Company 43: 100 Company 44: 30 to 70 Company 45: 100 Company 46: Unknown Company 47: 30 to 35 Company 48: 40 to 70 Company 49: 100 Company 50: 100 Company 51: 50	100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 40 to 60 100 30 to 70 100 100 100 40 to 70 100 100
	Unknown plastics and wood and sawdust	Company 52: 50+	100

Product	Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
	LDPE and sawdust	Company 53: 50 (LDPE) Company 54: Unknown	100 100
	LDPE and sawdust and wood chips	Company 55: 50 (LDPE)	100
	Fiberglass and HDPE	Company 56: 75 (HDPE)	95

7. Specifications

EPA identified no specifications or standards that either require or preclude the use of recovered materials in parking stops. ASTM C595M-95 Standard Specification for Blended Hydraulic Cements can be used for mixing concrete for parking stops. This standard specifies a 15 to 40 percent pozzolan content (e.g., coal fly ash) in a blended portland pozzolan cement and up to 70 percent GGBF slag content.

B. Temporary Traffic Control Devices

1. Background

In §§247.13(c), (d), and (e) of the proposed CPG II, EPA proposed to designate channelizers containing recovered plastic or rubber; delineators containing recovered plastic, rubber, or steel; and flexible delineators containing recovered plastic, respectively. In Section D-3 of the accompanying draft RMAN II, EPA recommended that these items contain the levels of recovered materials listed in Table 11.

Table 11

Draft Recovered Materials Content Recommendations for Channelizers, Delineators, and Flexible Delineators

Product	Material	Postconsumer Content (%)
Channelizers	Plastic Rubber (base only)	25 to 95 100
Delineators	Plastic Rubber (base only) Steel (base only)	25 to 90 100 25 to 50
Flexible Delineators	Plastic	25 to 85

EPA requested additional information about the use of postconsumer plastic in the drum (upper) portion of channelizers. EPA stated that several manufacturers had informed the Agency that using recovered plastic in the upper portion of a channelizer was impractical because the most important characteristic of the device is longevity and durability, and reprocessed plastic loses its "reboundability." No commenters provided information about the use of postconsumer plastic in the drum portion of channelizers. In addition, EPA received no comments on the proposed channelizer designation and the draft recovered materials content recommendations for this item.

Based on the research conducted by EPA for the proposed designation of channelizers and the fact that no additional information was submitted to substantiate the manufacturers claims about the use of recovered materials in the upper portion of channelizers, EPA is designating channelizers in the final CPG II and including the draft recommendations for purchasing this item in the final RMAN II. EPA will consider future revisions to the recommendations should additional content information become available.

In addition, EPA received no comments on the proposed delineator or flexible delineator designations and the draft recovered materials content recommendations for these items. One commenter submitted information about an additional supplier of flexible delineators. Therefore, based on the research conducted for the proposed CPG II and draft RMAN II, EPA is designating delineators and flexible delineators in the final CPG II and including the draft recommendations for purchasing these items in the final RMAN II. EPA will add the additional product source to the list of vendors of flexible delineators that EPA compiles.

2. Summary of Comments and Agency's Response

No comments were received on the proposed designations of channelizers, delineators, and flexible delineators.

3. Rationale for Designation

EPA believes that channelizers, delineators, and flexible delineators satisfy the statutory criteria for selecting items for designation.

a. Use of Materials in Solid Waste

Channelizers, delineators, and flexible delineators are made with plastic, rubber, and steel, which constitute a significant portion of municipal solid waste, as discussed in Appendix V of this document. Although these materials are being recovered for use in manufacturing other products, additional end-use markets for them are needed. Many manufacturers of temporary traffic control devices are currently working to increase the amounts of postconsumer plastic and rubber used in their products.

b. Technically Proven Uses

Temporary traffic control devices made with recovered materials have been produced in the United States for several years. Manufacturers have been using high percentages of crumb rubber buffings and steel in the lower components of traffic channelizers and delineators since the creation of these devices but have not always advertised this fact. The substitution of recovered resins in the plastic components of traffic control devices is technically and economically feasible.

EPA identified two manufacturers that use postconsumer HDPE or unspecified plastics in the upper portion of their delineators and a postconsumer rubber base. Another manufacturer uses postconsumer PP in the upper portion of its delineator and steel in the base. EPA obtained information from three companies that use postconsumer PE, PE and polycarbonate, and PP in their flexible delineators.

During EPA's research, several manufacturers stated that using recovered plastic in the upper portion of a channelizer was impractical, because the most important characteristic of the device is longevity and durability, and that reprocessed plastic loses its "reboundability." These manufacturers stated that, because these devices must be able to withstand multiple impacts without deformation, virgin resin is required. Manufacturers stated that the base of the device, however, can be manufactured from any heavy material, and several companies use half or whole used tires. Others use postconsumer crumb rubber to create a molded base.

The *Manual on Uniform Traffic Control Devices* published by the Federal Highway Administration (FHWA) contains specifications used by most states for the size, shape, mounting,

and placement of traffic control devices, including temporary devices. While the FHWA does not specify the materials to be used in these devices, it does not preclude the use of recovered materials.

Two states, Florida and North Carolina, have specifications that require the use of recovered materials in their flexible delineators. Florida requires that the product be made from commingled recycled plastic from Florida. The product must withstand multiple impacts by full size vehicles and return to a functional delineator position. In addition, the material must be ultraviolet (UV) stabilized and inert to all normal atmospheric elements. The post must survive three impacts occurring at 35 miles per hour.

North Carolina requires flexible delineator posts to be of a flexible, "recycled and/or recyclable material" that is resistant to impact, UV light, ozone, and hydrocarbons, and resistant to stiffening with age. The post must survive 10 impacts occurring at 35 miles per hour.

c. Impact of Government Procurement

Government agencies purchase or use appropriated federal funds to purchase temporary traffic control devices. The federal government represents a large share of the market for temporary traffic control devices. The Department of Transportation and Federal Emergency Management Agency are among federal agencies that purchase channelizers, delineators, and flexible delineators, specifically. Other major users of temporary traffic control devices include the Department of Veterans Affairs, Army Corps of Engineers, and Department of the Interior.

EPA has good reason to believe that virtually every state highway department purchases these items since these departments use monies from the Federal Highway Trust Fund to complete major construction and renovation projects, for which the use of temporary traffic control devices is extensive. The States of Kentucky and Florida use traffic control products that have bases made from postconsumer scrap tires and have reported no performance problems. While several manufacturers stated that devices containing recovered materials were typically more expensive than their virgin counterparts, neither Kentucky nor Florida cited cost as a barrier to purchasing the product.

4. Designation

EPA is designating channelizers, delineators, and flexible delineators containing recovered plastic and rubber. This designation does not preclude a procuring agency from purchasing these traffic control devices manufactured from other materials. It simply requires that a procuring agency, when purchasing these temporary traffic control devices made from plastic or rubber, purchase these items with recovered materials when these items meet applicable specifications and performance requirements.

5. Preference Program

EPA is recommending the draft recommendations in the final RMAN II. EPA recommends that, based on the recovered material shown in Table 12 and the corresponding table in the RMAN II, procuring agencies establish minimum content standards for use in purchasing channelizers, delineators, and flexible delineators.

Table 12

Final Recovered Materials Content Recommendations for Channelizers, Delineators, and Flexible Delineators

Product	Material	Postconsumer Content (%)
Channelizers	Plastic Rubber (base only)	25 to 95 100
Delineators	Plastic Rubber (base only) Steel (base only)	25 to 90 100 25 to 50
Flexible Delineators	Plastic	25 to 85

6. Background for Recommendations

Channelizers, delineators, and flexible delineators are types of temporary traffic control devices used to divert or streamline traffic flow in a variety of applications. Channelizers are barrels or drums which can be made from postconsumer plastic resins; the weighted base is sometimes made from postconsumer rubber. EPA obtained information from three companies that make channelizers from recovered materials. Delineators are tubular pavement markers that come in many shapes, sizes, and compositions. The top portion of the delineator can be manufactured from postconsumer plastics. Delineator bases are either steel stakes that can be driven into the ground, or they can be made from recovered postconsumer rubber to support the delineator on the road surface. EPA obtained information on eight manufacturers of delineators. Flexible delineators allow vehicles to strike them without causing damage to the vehicle or the delineator. EPA identified three companies that manufacture flexible delineators from recovered PE, PE and polycarbonate, and PP. Table 13 shows the information EPA obtained on the recovered materials content of channelizers, delineators, and flexible delineators.

Table 13

Recovered Materials Content of Channelizers, Delineators, and Flexible Delineators (Temporary Traffic Control Devices)

Product	Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Channelizers	PET/rubber base	Company A: 25/100	25/100
	Unspecified plastics	Company B: 95 Company C: unknown	95 unknown
Delineators	Rubber (base only)	Company D: 100 Company E: 100 Company F: 100	100 100 100
	HDPE/Rubber base	Company G: 90/100	90/100
	PP/Steel stake	Company H: 25/50	25/50
	Plastics/Rubber base	Company I: 50/100	50/100
	Unknown	Company J: 50 Company K: unknown	70 unknown
Flexible Delineators	PE and polycarbonate	Company L: 51 to 85	51 to 85
	PE	Company M: 5	5
	PP	Company N: 25	75

7. Specifications

The *Manual on Uniform Traffic Control Devices*, published by the Federal Highway Administration, contains specifications used by most states for the size, shape, mounting, and placement of temporary traffic control devices.

Two states have specifications that require the use of recovered materials in their flexible delineators:

- **Florida:** Flexible delineator material shall be made of at least 51 percent postconsumer commingled recycled plastic obtained from Florida which will withstand multiple impacts by full-size vehicles and return to a functional delineator position. The material shall be UV stabilized and inert to all normal atmospheric elements. The post must survive three impacts occurring at 35 miles per hour.

- **North Carolina:** The flexible delineator post shall be of a flexible, recycled and/or recyclable material which shall be resistant to impact, UV light, ozone, and hydrocarbons, and shall resist stiffening with age. The post must survive 10 impacts occurring at 35 miles per hour.

Local governments in California use specifications for delineator posts that are approved by the California Department of Transportation (CALTRANS). CALTRANS tests all delineator posts according to its specification for *Drivable Flexible Plastic Guide Marker and Clearance Marker Posts*. At least three types of CALTRANS approved delineators contain recovered plastic. CALTRANS specifications require that the delineators be resistant to impact, UV light, ozone, and hydrocarbons. CALTRANS also specifies width, length, base anchoring, color, heat and cold resistance, and color fastness. At specified temperatures and angles, posts must withstand 10 impacts at 35 miles per hour and 5 impacts at 55 miles per hour.

X. PARK AND RECREATION PRODUCTS

A. Plastic Fencing

1. Background

In §247.14(b) of the proposed CPG II, EPA proposed to designate snow fencing containing recovered plastic. In Section E-2 of the accompanying draft RMAN II, EPA recommended that snow fencing contain the levels of recovered materials listed in Table 14.

Table 14

Draft Recovered Materials Content Recommendation for Snow Fencing

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic	60 to 100	90 to 100

EPA requested additional information concerning the performance of snow fencing containing recovered materials and specification for this item. No commenters addressed these issues. EPA received no other comments on the proposed plastic snow fencing designation and the draft recommended content levels for this item. Therefore, based on the research conducted for the proposed CPG II and draft RMAN II, EPA is designating plastic fencing in the final CPG II and revising the definition of plastic fencing in response to the comment below.

2. Summary of Comments and Agency's Response

Comment: GSA recommended that EPA revise the definition of "snow fencing" by adding the phrase "and to delineate construction areas."

Response: EPA reviewed its research into snow fencing and found that plastic fencing containing recovered materials can be used for several applications, including control of drifting snow and sand and as a warning or safety barrier at construction areas. Plastic fencing used in these applications is called many names — snow fencing, temporary fencing, beach or dune fencing, warning barrier, and safety barrier. While "snow fencing" is a commonly used term, EPA agrees with GSA that using this term alone can mislead procuring agencies about the scope of EPA's designation. Therefore, in §247.14(b) of today's final CPG II, EPA is revising the designation of "snow fencing" as follows: plastic fencing containing recovered plastic for use in controlling snow or sand drifting and as a warning/safety barrier in construction or other applications. EPA also is changing the term "snow fencing" to "plastic fencing" in the definitions and adding the phrase "and to provide a warning or barrier in construction and other areas" to the definition.

3. Rationale for Designation

EPA believes that plastic fencing satisfies the statutory criteria for selecting items for designation.

a. Use of Materials in Solid Waste

As discussed in Appendix V of this document, plastics are a significant component of the solid waste stream. While plastics are being recovered and used to make products, additional end-use markets are needed. Plastic fencing is made with both recovered and postconsumer HDPE from milk jugs, water bottles, and other containers.

b. Technically Proven Uses

EPA is aware of at least three manufacturers that produce plastic fencing containing recovered materials. Information obtained from one manufacturer indicated that recovered material content plastic fencing can and does meet the same performance criteria as fencing containing virgin materials. This manufacturer stated that for recovered content plastic fencing to be as strong as virgin content plastic fencing, however, the material must usually be thicker and heavier.

The states of New Jersey and New York, including the New York State Thruway Authority, are among states that have purchased plastic fencing containing recovered materials and reported no performance problems with the products purchased. According to the information available to EPA, there are no national or federal specifications that preclude the use of recovered materials in the manufacture of plastic fencing.

One distributor from which EPA obtained information indicated that recovered content plastic fencing costs as much to manufacture as virgin fencing and is sold at a competitive price. Another manufacturer stated that lightweight recovered material content plastic fencing is normally 20 percent less expensive than virgin material content plastic fencing, whereas the cost of heavy-duty fencing containing recovered materials is comparable with the cost of the virgin product.

c. Impact of Government Procurement

Government agencies such as the National Park Service and the U.S. Army Corps of Engineers purchase plastic fencing. EPA does not have specific data on the amount of plastic fencing purchased by government agencies but believes that these items are procured in sufficient quantities to support the designation of this item under RCRA section 6002.

4. Designation

EPA is designating plastic fencing containing recovered plastics. This designation does not preclude a procuring agency from purchasing plastic fencing manufactured from another material, such as wood. It simply requires that a procuring agency, when purchasing plastic fencing, purchase this item with recovered materials when this item meets applicable specifications and performance requirements.

5. Preference Program

EPA is recommending the draft RMAN recommendations in the final RMAN II. EPA recommends that, based on the recovered materials content levels shown in Table 14 and the corresponding table in the RMAN II, procuring agencies establish minimum content standards for use in purchasing new plastic fencing.

Table 15

Final Recovered Materials Content Recommendation for Plastic Fencing

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic	60 to 100	90 to 100

6. Background for Recommendations

Plastic fencing is constructed from plastic materials in an open-weave pattern. Plastic fencing is used to control drifting snow by restricting the force of wind and to delineate construction areas and protect sand dunes.

Plastic fencing made with both recovered and postconsumer plastic is sold in variable height rolls 50 to 100 feet in length. EPA obtained information from three manufacturers of plastic fencing containing recovered HDPE. Table 16 presents information provided by manufacturers on the recovered materials content of plastic fencing.

Table 16

Recovered Materials Content of Plastic Fencing

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
HDPE	Company A: 60 Company B: 100 Company C: up to 90	97 100 up to 90

7. Specifications

New York and New Jersey developed specifications for recovered content plastic fencing, although neither specification remains in effect, because neither state purchased sufficient quantities of plastic fencing to justify maintaining the specifications. EPA found no other specifications or standards for plastic fencing.

New York's specification required an orange-colored plastic fencing used for snow barriers, warning barriers and safety barriers. Height varied, depending on application, from 4 to 6 feet. Weight varied from 17 pounds per 100 foot section for warning barriers to 48 pounds per 100 foot section for snow fencing to 66 pounds per 100 foot section for 6-foot safety barrier fencing. The New York specification also addressed mesh size, porosity, service temperature range, and strength for each application. A copy of this specification is available from the RCRA Hotline by calling 1-800-424-9346. New Jersey required orange, UV-stabilized fencing with a minimum tensile strength of 3,190 pounds per square inch (PSI) (horizontal) and 3840 PSI (vertical), as measured by ASTM test D638, and ultimate tensile strength of 220 PSI (horizontal) and 2660 PSI (vertical).

XI. LANDSCAPING PRODUCTS

A. Garden and Soaker Hoses

1. Background

In §247.15(c) of the proposed CPG II, EPA proposed to designate garden and soaker hoses containing recovered plastic and rubber. In Section F-3 of the accompanying draft RMAN II, EPA recommended that garden and soaker hoses contain the levels of recovered materials listed in Table 17.

Table 17

Draft Recovered Materials Content Recommendations for Garden and Soaker Hoses

Product	Material	Postconsumer Content (%)
Garden Hose	Rubber and/or plastic	60 to 65
Soaker Hose	Rubber and/or plastic	60 to 70

EPA requested information on government agencies' purchases of garden and soaker hoses. No commenters provided purchasing information. EPA received no comments on the proposed designation of garden and soaker hoses and one comment on the draft recommended recovered materials content levels for this item. Therefore, based on the research conducted for the proposed CPG II and draft RMAN II, EPA is designating garden and soaker hoses in the final CPG II and including the draft recommendation for purchasing this item in the final RMAN II.

2. Summary of Comments and Agency's Response

Comment: The U.S. Department of the Interior commented that EPA's recommended recovered materials content levels for garden and soaker hoses are higher than those recommended by Green Seal, a third party certification organization. The commenter further noted that under the Executive Order, federal agencies are encouraged to utilize third party certification as a means to facilitate the purchase of environmentally preferably products. Because EPA's recommendations are higher than Green Seal's, the use of a third party certifier in the case of hoses would not appear to be in the best interest of procuring agencies.

Response: EPA noted in the recommendations in the draft RMAN II that Green Seal's recommended content levels were lower than EPA's recommendations. EPA further noted that all companies from which EPA obtained information manufacture garden and/or soaker hoses with at least 60 percent postconsumer content.

RCRA section 6002 specifically directs procuring agencies to purchase items designated

by EPA containing the highest levels of recovered materials practicable. Nothing in the Executive Order contradicts this requirement. In fact, the Executive Order directs federal executive agencies to establish affirmative procurement programs for all designated EPA guideline items purchased by their agency and to develop these programs in accordance with RCRA section 6002. Thus, in order to meet both the statutory requirements of RCRA section 6002 and the management directive of the Executive Order, procuring agencies must specify that garden and soaker hoses contain the highest levels of recovered materials practicable. If hoses certified by Green Seal contain lower levels of recovered materials, then they do not satisfy the RCRA and the Executive Order requirements.

3. Rationale for Designation

EPA believes that garden and soaker hoses satisfy the statutory criteria for selecting items for designation.

a. Use of Materials in Solid Waste

Garden hoses are made from polyvinyl chloride (PVC) or rubber, while soaker hoses are made primarily from rubber. As discussed in Appendix V of this document, plastic, including PVC, and rubber are significant components of the solid waste stream. While plastic and rubber are being recovered for use in new products, additional end-use markets are needed.

b. Technically Proven Uses

Both garden and soaker hoses are produced with high levels of recovered materials without compromising product performance. They are produced with an average length of 70 feet and in 1/2-, 5/8-, and 3/4-inch diameters. EPA obtained information from five manufacturers of garden and soaker hoses made with recovered materials. Two of the manufacturers produce both garden and soaker hoses, two produce only garden hoses, and the remaining manufacturer produces only soaker hoses.

EPA identified two standards for garden and soaker hoses. ASTM specification D3901, *Consumer Specification for Garden Hose*, addresses physical and performance characteristics (pressure, tensile, and ripping strength tests) and states that the material components are to be agreed upon by the purchaser and seller. Green Seal, an independent standards organization located in Washington, DC, specifies the use of 50 percent postconsumer rubber material in garden hoses and 65 percent postconsumer rubber material in soaker hoses. EPA did not identify any additional standards, although Scientific Certification Systems of Oakland, California, tests rubber hoses and certifies the amount of recovered rubber as a service to manufacturers.

One manufacturer indicated that the state of Florida uses soaker hoses for irrigation of planted areas on medians. The manufacturer claimed that using soaker hoses for irrigation allows roads and sidewalks to remain dry (lowering the possibility of slipping and skidding), conserves

water, and reduces labor.

The price of hoses containing recovered materials is generally less than or comparable to the price of virgin material content hoses. According to one manufacturer, the cost of garden hose tubing (without the metal connectors) made with recovered materials is about half of that made with virgin materials. Soaker hoses containing recovered materials are priced competitively to comparable products containing virgin materials.

EPA's research found that recovered material content garden and soaker hoses are available internationally from four companies. Both types of hoses can be purchased from many sources, including major hardware, lawn and garden, and home improvement retailers nationwide and from military post and base exchanges.

c. Impact of Government Procurement

According to information supplied to EPA by a vendor, the U.S. Department of Defense has been purchasing recovered material content soaker hoses for 50 or 60 years. The Army/Air Force Exchange Service, which supplies army post exchanges and air force base exchanges with thousands of products, verified that it offers recovered materials content soaker hoses. The National Park Service indicated that it purchases garden and soaker hoses, but does not track their purchase, because hoses were not previously designated as a guideline item. Additionally, GSA reported that it sold $70,000 worth of soaker hoses to federal agencies in fiscal year 1995. EPA does not have more specific data on the amount of garden and soaker hoses purchased by procuring agencies. However, EPA believes that these items are purchased in sufficient quantities to support the designation of these items under RCRA section 6002.

4. Designation

EPA is designating garden and soaker hoses containing recovered plastic and rubber. This designation does not preclude a procuring agency from purchasing garden and soaker hoses manufactured from other materials. It simply requires that a procuring agency, when purchasing garden and soaker hoses made from plastic and/or rubber, purchases these items with recovered materials when these items meet applicable specifications and performance requirements.

5. Preference Program

EPA is recommending the draft RMAN recommendations in the final RMAN II. EPA recommends that procuring agencies establish minimum content standards for use in purchasing garden and soaker hoses. Based on the research conducted by the EPA, the Agency recommends that the standards be based on the content levels shown in Table 18 and the corresponding table in the RMAN II.

Table 18

Final Recovered Materials Content Recommendations for Garden and Soaker Hoses

Product	Material	Postconsumer Content (%)
Garden Hose	Rubber and/or plastic	60 to 65
Soaker Hose	Rubber and/or plastic	60 to 70

6. Background for Recommendations

Hoses for landscaping applications are usually manufactured with rubber or PVC plastic. It comes in two different types: garden hose and soaker hose. Garden hoses are flexible tubing that conduct water above ground to a specific location. The product is usually made from PVC or rubber. Soaker hoses, which are primarily made of rubber, are a perforated flexible tubing that is used to deliver gentle irrigation to plants.

EPA identified five manufacturers, two of which manufacture both garden and soaker hoses, two that manufacture only garden hoses, and one that manufactures only soaker hoses. All manufacturers who supplied information manufactured garden and soaker hoses with at least 60 percent recovered materials. Garden hoses are available with between 60 and 65 percent postconsumer content and soaker hoses are available with 60 to 70 percent postconsumer content. Table 19 presents information provided by manufacturers on the recovered materials content of garden and soaker hoses.

Table 19

Recovered Materials Content of Garden and Soaker Hoses

Product	Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Garden Hose	Rubber and PVC plastic	Company A: 60	60
	Rubber	Company B: 65	65
	PVC plastic	Company C: unknown	65
	PVC plastic and Rubber	Company D: unknown	unknown
Soaker Hose	Rubber	Company B: 65	65
		Company E: 60 to 70	60 to 70
	PVC plastic and Rubber	Company D: unknown	unknown

7. Specifications

EPA identified two standards for garden and soaker hoses:

- **ASTM D3901: *Consumer Specification for Garden Hose*.** The specification addresses physical and performance characteristics (pressure, tensile, and ripping strength tests) and states that the material components are to be agreed upon by the purchaser and seller.

- **Green Seal GC-2: *Watering Hoses*.** The standard calls for the use of 50 percent postconsumer rubber material in garden hoses and 65 percent postconsumer rubber material in soaker hoses.

B. Lawn and Garden Edging

1. Background

In §247.15(d) of the proposed CPG II, EPA proposed to designate lawn and garden

edging containing recovered plastic or rubber. In Section F-4 of the accompanying draft RMAN II, EPA recommended that lawn and garden edging contain the levels of recovered materials listed in Table 20.

Table 20

Draft Recovered Materials Content Recommendations for Lawn and Garden Edging

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic and/or rubber	30 to 100	30 to 100

EPA requested information on government agencies' purchase of lawn and garden edging and specification for this item. No commenters addressed these issues. In addition, EPA received no comments on the proposed lawn and garden edging designation and the draft recommended recovered materials content levels for this item. Therefore, based on the research conducted for the proposed CPG II and draft RMAN II, EPA is designating lawn and garden edging in the final CPG II and including the draft recommendations for purchasing this item in the final RMAN II.

2. Summary of Comments and Agency's Response

No comments were received on the proposed designation of lawn and garden edging and the draft procurement recommendations for this item.

3. Rationale for Designation

EPA believes that lawn and garden edging satisfies the statutory criteria for selecting items for designation.

a. Use of Materials in Solid Waste

Lawn and garden edging is made with both recovered and postconsumer HDPE (which is used in milk jugs, water bottles, and other containers), various mixed plastic resins, and rubber (from tires). As discussed in Appendix V, plastics and rubber are significant components of the solid waste stream.

b. Technically Proven Uses

Lawn and garden edging is made in two strengths: commercial and residential. Commercial edging is stronger and more durable. EPA obtained information from seven companies that manufacture lawn and garden edging made with recovered HDPE and mixed

plastics. They are located across the country and supply a national market. These products can also be purchased from many local hardware, lawn and garden, and home improvement retailers.

The companies from which EPA obtained information have sold lawn and garden edging containing recovered materials for a number of years and have a diverse customer base, which includes federal, state, and local governments.

c. Impact of Government Procurement

Although EPA was not able to obtain any specific data on the amount of lawn and garden edging procured by government agencies, EPA believes that these items are procured in sufficient quantities to support their designation, especially by such agencies as the National Park Service and state and local parks and recreation offices.

4. Designation

EPA is designating lawn and garden edging containing recovered plastics and rubber. This designation does not preclude a procuring agency from purchasing lawn and garden edging manufactured from other materials, if available. It simply requires that a procuring agency, when purchasing lawn and garden edging made from plastics and/or rubber, purchase these items with recovered materials when these items meet applicable specifications and performance requirements.

5. Preference Program

EPA is recommending the draft RMAN recommendations in the final RMAN II. EPA recommends that, based on the recovered materials content levels shown in Table 21 and the corresponding table in the RMAN II, procuring agencies establish minimum content standards for use in purchasing lawn and garden edging.

Table 21

Final Recovered Materials Content Recommendations for Lawn and Garden Edging

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic and/or rubber	30 to 100	30 to 100

6. Background for Recommendations

Lawn and garden edging is used to provide a barrier between lawns and landscaped areas or garden beds. Strips of edging are set into the ground to prevent grass roots or weeds from spreading to the landscaped areas. Edging is sold in rolls of varying lengths or in long pieces and is approximately 4 to 8 inches high, with a rolled bead along the top portion. It is made from recovered HDPE, mixed plastic, and rubber. The edging is made in both commercial and residential strengths. Commercial edging is stronger and more durable than residential edging.

EPA identified seven manufacturers of lawn and garden edging that produce edging with between 30 and 100 percent postconsumer HDPE or other plastics or a combination of rubber and mixed plastics. Table 22 provides information on lawn and garden edging made with recovered materials.

Table 22

Recovered Materials Content of Lawn and Garden Edging

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
HDPE	Company A: 100	100
	Company B: 70 to 100	70 to 100
	Company C: n/a	100
	Company D: 30	30
Unspecified plastics	Company E: 90 to 95	100
Unspecified plastics	Company F: 30 to 70	30 to 70
Rubber and/or plastics	Company G: up to 100	up to 100

7. Specifications

EPA is not aware of any performance specifications for lawn and garden edging.

XII. NON-PAPER OFFICE PRODUCTS

A. Printer Ribbons

1. Background

In §247.16(f) of the proposed CPG II, EPA proposed to designate printer ribbons. In Section G-6 of the accompanying draft RMAN II, EPA recommended that agencies procure printer ribbon reinking or reloading services or procure reinked or reloaded printer ribbons.

EPA identified several federal and state procuring agencies that have purchased remanufactured or reinked printer cartridges. EPA requested information on other government users. No commenters submitted information identifying other government users of reinked or remanufactured printer ribbons.

EPA received one comment from GSA providing information about purchasing remanufactured ink jet ribbons through GSA. EPA received no comments on the proposed designation of printer ribbons and the draft purchasing recommendations for this item. Therefore, based on the research for the proposed CPG II and the draft RMAN II, EPA is designating printer ribbons in the final CPG II and including the draft recommendations in the final RMAN II.

2. Summary of Comments and Agency's Response

Comment: GSA recommended that EPA refer procuring agencies to the GSA New Item Introductory Schedule as a source of remanufactured printer ribbons.

Response: EPA is revising Section G-6 in the final RMAN II to include this information.

3. Rationale for Designation

EPA believes that printer ribbons satisfy the statutory requirements for selecting items for designation.

a. Use of Materials in Solid Waste

Printer cartridges contain a nylon ribbon, internal gears, and an outer casing made of plastic. One vendor reported that the casing is made of acrylonitrile butadiene styrene (ABS) plastic. As shown in Appendix V, plastic, the predominant material in printer ribbons, constitutes a significant portion of MSW.

According to a study compiled by one manufacturer, about 200 to 250 million printer ribbon cartridges are disposed of each year.

b. Technically Proven Uses

The reinking process uses electromagnetic machinery to apply new ink to an old ribbon. Equipment used in the reinking business ranges from inexpensive, low-quality machines to advanced, high-quality systems.

Ribbons are reinked until they reach the end of their useful life and begin to fall apart, although opinions differ among vendors about the number of times printer ribbons can be reinked. Estimates range from 3 to 20 times, depending on the care taken by the user to properly maintain the ribbon. According to the reinking vendors EPA contacted, certain actions, such as using an original equipment manufacturer (OEM) ribbon, removing the ribbon as soon as the ink starts to fade, and storing ribbons upside down, make reinking more successful. Two vendors stated that generic printer cartridges cannot be reinked or reloaded as often as OEM cartridges because of the substandard quality of the fabric, plastic cartridge, and internal gears.

Some reinking vendors claim that reinked ribbons have a higher print quality than new ribbons, because a used ribbon is more "absorbent" and more ink can be applied and because the black reinking ink prints darker than the methyl violet ink used on original ribbons. One company attributed its success to the use of specially made reinking machinery and high-quality ink.

Wide band printer ribbons (14 inches or wider), in particular, are good candidates for reinking, because the ribbon does not wear down as easily as other ribbons. Wide band ribbons are used in mainframe computer printers and certain data processing equipment. Wide band printers print from top to bottom, resulting in fewer impressions per square inch than printers using other types of ribbon. Wide band ribbons are not welded together; they are wound around two spools. The ribbon moves from one spool to the other and after one full rotation, the ribbon reverses direction.

The reloading process reuses the printer ribbon cartridge but replaces the used ribbon with a new one. Reloading the cartridge with a new ribbon allows the cartridge to be reused multiple times. Vendors who reload printer cartridges cite several advantages to reloading. Replacing the original ribbon, instead of reusing it reduces the potential for the ribbon to fray, which would reduce print quality, due to the impact of the print head on the ribbon during the course of normal use. Reloading also ensures that the weld of the original ribbon (the point at which the two ends of the ribbon are joined together) does not tear because of repeated use. Reloading also helps maintain consistent ink quality because old and new inks are not mixed.

EPA identified no specifications or policies that would prevent the purchase of these items. In fact, Alabama has a specification for reinked ribbons, which requires the ribbon to be vacuum cleaned, reinked, and rewound to proper tension. It does not, however, include standard operating and maintenance practices for users to follow. GSA does not write specifications for products available as schedule items.

Finally, EPA found that reinked and reloaded printer ribbons were not only available and performed well but also generally cost less than new cartridges. EPA identified 18 companies that service customers nationwide. Seven of these companies are reinkers and five are reloaders; EPA was unable to categorize the remaining six companies.

Reinked ribbons generally cost 50 percent less than their disposable counterparts. According to two of the reinking vendors, the other reinking vendors claimed between 20 and 50 percent savings. One user estimated that the price of a reloaded cartridge is about half the cost of a new cartridge.

c. Impact of Government Procurement

EPA identified a number of procuring agencies that have purchased remanufactured or reinked printer cartridges, as described below.

The Processing and Distribution Center of the U.S. Postal Service (USPS) in Portland, Maine, has purchased reinked ribbons from a local vendor for 3 years and reports that the ribbons last as long as new ribbons. USPS purchases reinked rather than reloaded ribbons, because it was not aware that reloaded ribbons were on the market.

The state of Alabama used reinked ribbons for 3 years and has had no performance complaints. It has not compared reinked ribbons with reloaded ones; it buys reinked because a local reinking company is the only vendor that bids on the contract.

EPA Region 6 used reloaded cartridges and reports that it had a failure rate (i.e., jamming) of less than 1 percent over 3 years. The region said it started using reloaded cartridges, because reinked cartridges caused holes in the ribbon.

The state of Florida also purchases reloaded ribbons. Florida used reinked ribbons in the past but found that users often overran ribbons (using them beyond the normal ink life), thereby reducing reinking success.

EPA found that GSA offers remanufactured and reinked printer ribbons through its *Environmental Products Guide*. The *Environmental Products Guide* lists three reloading vendors and two reinking vendors under its New Item Introductory Schedule. GSA reports that federal agencies purchased approximately $200 worth of reinked or reloaded printer ribbons in fiscal year 1995.

4. Designation

EPA is designating reinked or reloaded printer ribbons found in printer cartridges. This designation includes procuring reinked and reloaded printer ribbons as well as reinking and reloading services.

5. Preference Program

Minimum content standards are not appropriate for remanufactured items, such as printer ribbons, because a core part of the item is reused in the new product. In lieu of minimum content standards, EPA recommends that procuring agencies adopt one or both of the following approaches: (1) procure ribbon reinking or reloading services or (2) procure reinked or reloaded printer ribbons. EPA further recommends that procuring agencies establish policies that give priority to reinking or reloading their expended printer ribbons.

6. Background for Recommendations

Fabric printer ribbons are used in dot matrix and other types of impact printers. They also are used to print hard copy receipts for retail purchases and bank automatic teller machines. Printer cartridges consist of an outer plastic casing (cartridge), a ribbon, and internal gears. The ribbon is made of nylon fabric and contains ink that clings to the weave of the fabric. The ink is transferred to paper when the printer's print head hits the ribbon, similar to a typewriter. The nylon, a petrochemical product, is nonabsorbent, so the ink simply sits in the spaces of the fabric's weave.

Once a fabric ribbon runs out of ink, the cartridge can be reloaded with a new ribbon (also referred to as restuffed or remanufactured) or the old ribbon can be reinked. The reinking process uses electromagnetic machinery to apply new ink to the existing ribbon. Ribbons are reinked until they reach the end of their useful life and begin to fall apart.

Both reinked and reloaded printer ribbons are available as new introductory schedule items from GSA.

7. Specifications

EPA did not identify any national specifications for reinked printer ribbons. The state of Alabama has a specification for reinked ribbons which requires the ribbons to be vacuum cleaned, reinked, and rewound to proper tension. A copy of this specification is available in the RCRA Docket.

B. Ink Jet Cartridges

1. Background

In §247.16(g) of the proposed CPG II, EPA proposed to designate ink jet cartridges. In Section G-7 of the accompanying draft RMAN, EPA recommended that procuring agencies procure ink jet cartridge refilling services or procure refilled ink jet cartridges. EPA received significant comments opposing the proposed designation. As explained in this section, the Agency has concluded that at this time there is insufficient evidence to support a designation of ink jet

cartridges. Therefore, in the final CPG II, EPA is withdrawing the proposed ink jet cartridge designation.

Commenters raised a number of concerns in response to EPA's proposal to designate ink jet cartridges. These included the impact of the proposed ink jet cartridge designation on the solid waste stream, the performance of refilled ink jet cartridges, and product availability. Subsequent to the close of the public comment period, EPA met with one of the commenters (a major manufacturer of ink jet equipment and ink jet cartridges) to discuss the proposed ink jet cartridge designation. Minutes of this meeting have been added to the RCRA Docket and are available for public review. In addition, EPA contacted the GSA's Federal Supply Service to discuss GSA's public comments on the proposed ink jet cartridge designation and issues raised by the ink jet equipment manufacturers. A summary of information obtained during these conversations has also been added to the RCRA Docket. As a result, the Agency has decided it will not include ink jet cartridges as a designated item in CPG II. The following section summarizes the public comments and the Agency's response.

2. Summary of Comments and Agency's Response

Comment: Hewlett-Packard (H-P) Company and the Information Technology Industry Council submitted comments opposing the proposed item designation. HP's comments included an extensive discussion of solid waste, performance and quality, availability, and patent and trademark concerns.

Response: After considering the new information submitted by Hewlett-Packard and others, EPA has concluded that there is insufficient evidence to support a designation of ink jet cartridges at this time. On April 14, 1997, EPA published a Notice of Data Availability in the *Federal Register*. In this notice, EPA notified interested parties of the tentative decision not to designate ink jet cartridges, summarized the information available to the Agency, and requested further public comment.

Only two comments were received in response to the April 14, 1997, *Federal Register* notice—one from a vendor of ink jet refilling equipment and additional information from H-P. The vendor appears to have promising technology for resolving many of the performance and solid waste issues raised by H-P. The vendor did not, however, submit sufficient information to change EPA's earlier conclusion that there is insufficient information to support designating ink jet cartridges at this time. Therefore, in the final CPG II, EPA is withdrawing the proposed designation of ink jet cartridges. EPA will continue to monitor developments in ink jet cartridge and refilling/remanufacturing technology and will consider designating ink jet cartridges in the future.

Comment: H-P noted that ink jet cartridges weigh approximately 1.40 ounces, which would equate 3,400 to 3,900 tons of plastic discards annually. Additionally, H-P stated that ink jet cartridges contain a specialty plastic and currently cannot be made with recovered materials.

In addition, H-P stated that ink jet cartridge refill kits generate a larger volume of solid waste than discarded ink jet cartridges, including the packaging. The kits include plastic containers for the replacement ink, tools for puncturing the cartridges in order to add the ink, and plastic and paper packaging. According to the information provided by commenters, refill kits have a three to four times larger share of the refill market than do vendors that refill and return ink jet cartridges to the user.

Response: One of the underlying purposes of the procurement guidelines program is to harness federal purchasing power to develop markets for materials recovered from solid waste. Once EPA designates an item, RCRA section 6002 requires a procuring agency to purchase the designated item containing the highest percentage of recovered materials practicable. This means that EPA's designations can help to create markets for recovered materials by creating markets for products made from those materials. Given this potential, an important element that EPA considers in its designation decision is whether designation of a particular item will significantly reduce discarded materials in the solid waste stream through the promotion of the recovery of the materials, including postconsumer materials. Thus, when considering whether to designate an item, EPA examines the likely impact of the designation on the volume of solid waste generated and discarded annually.

In the proposed CPG II Supporting Analyses, EPA stated that ink jet cartridges are composed primarily of plastic, and plastics constituted 10 percent of municipal solid waste in 1994. Approximately 80 to 90 million ink jet cartridges are discarded annually. EPA was not able to quantify the amount of ink jet cartridges discarded by federal agencies, however.

The plastics comprising the largest fraction of the municipal solid waste stream are PET, HDPE, LDPE, PVC, PP, and PS. Items designated in the original CPG contain one or more of these plastics, thus helping to create markets for these larger constituents of the plastics waste stream. If ink jet cartridges are made from specialty plastics, therefore, designating them would not create end-use markets for plastics recovered from MSW and would not have a significant impact on the solid waste stream.

Based on the information about the solid waste impacts of refill kits, compared to ink jet cartridges, EPA has concluded that, even when the packaging from both has been considered, the initial result of an ink jet cartridge designation could well be a net increase in solid waste, albeit a small increase when compared to the total amount of solid waste generated annually.

Comment: According to H-P, refilled ink jet cartridges can create a number of problems, ranging from diminished ink quality to interference with the proper operation of the ink jet nozzle. Commenters also provided anecdotal information that faulty refilled ink jet cartridges can and have caused damage to the office equipment in which they were used. H-P also stated that ink jet cartridges currently are designed to be disposable, rather than refillable. Thus, the parts in the cartridge are designed to last only for the life of the ink in the cartridge and, according to H-P, begin to wear as the original ink is used up and the internal pressure in the cartridge changes.

Supplemental comments submitted by H-P in response to the April 14, 1997, *Federal Register* notice provided additional information about testing of the performance of ink jet cartridges. H-P concluded that performance of remanufactured ink jet cartridges is poor and variable. According to Hewlett-Packard, remanufactured ink jet cartridges are "substantially less reliable, more likely to leak, and perform significantly less well than new H-P cartridges." EPA notes that H-P did not test the products of each ink jet cartridge remanufacturer, so there continues to be conflicting information about the performance of these products.

Response: EPA's initial research indicated that there was inconsistent quality among the ink jet cartridge refill kits and among the products of the ink jet cartridge refillers. EPA's research also indicated a lack of quality control standards for refillers and refill kits. Thus, while some refillers are able to produce refilled ink jet cartridges with acceptable performance characteristics, others have not been able to do so consistently. Because there are no testing or other quality control standards for procuring agencies to reference in their solicitations, the quality of refilled ink jet cartridges may be of concern.

Further, EPA's initial research indicated that users of refilled ink jet cartridges had sometimes experienced clogged nozzles and other performance problems. EPA has received additional information in the public comments confirming that performance problems have occurred. EPA discussed these performance concerns with GSA and found that, because GSA has offered refilled ink jet cartridges only recently, no record of customer satisfaction has been established.

EPA also has received conflicting information about whether ink jet cartridges are designed to be refilled. Some original equipment manufacturers stated, in their public comments, that the components in ink jet cartridges are designed to last only for the supply of original ink. In other words, ink jet cartridges are designed to be disposable. However, there is evidence that ink jet cartridges can and are being refilled and can perform adequately, even if they are not performing identically to a new replacement ink jet cartridge.

Comment: EPA's initial research identified 24 companies that refill ink jet cartridges for customers nationwide. H-P questioned whether refillers offer national coverage, particularly to rural areas, although it did not provide any hard evidence to the contrary. H-P also stated that its products are available immediately, while refilled ink jet cartridges may not be available immediately. Again, H-P did not provide any additional information to substantiate this statement.

Response: EPA has never limited its designations only to items that are available immediately in every part of the United States. Because the purpose of the federal buy-recycled program is to develop markets for products containing recovered materials, it has always been understood that these items might not be available to all procuring agencies in all instances. Rather, it is expected that, as procuring agencies seek to purchase products containing recovered materials, these items will become more widely and universally available. For this reason, RCRA

section 6002 provides that procuring agencies are not required to buy an EPA-designated item containing recovered materials if that item is not available within a reasonable time. Nevertheless, the availability of refilling services and refilled ink jet cartridges is a consideration for EPA when designating ink jet cartridges.

Comment: In addition to the issues discussed above, H-P and the Information Technology Industry Council commented that some refillers were violating the ink jet cartridge technology patents held by H-P and other manufacturers. H-P also commented that there had been violations of its trademarks. H-P commented that EPA should not encourage these activities by designating ink jet cartridges.

Response: EPA agrees that item designations should not encourage patent or trademark violations. However, EPA has not assessed this issue in the case of ink jet cartridges, because the Agency believes that there is insufficient evidence to support an ink jet cartridge designation based on the concerns about product performance and the lack of quality standards issues.

Comment: GSA commented that ink jet cartridges are available through Multiple Award Schedule (MAS) 75 1 D and that the proposed ink jet cartridge designation may impact the MAS by eliminating a majority of the current suppliers.

Response: EPA discussed MAS 75 1 D with GSA's Federal Supply Service and learned that the schedule currently lists suppliers of new replacement ink jet cartridges only. GSA is soliciting for refilled ink jet cartridges but has not yet made them available through this schedule. Rather, refilled ink jet cartridges are currently available through GSA's New Item Introductory Schedule. Thus, there is limited availability of refilled ink jet cartridges through GSA at this time.

C. Plastic Envelopes

1. Background

In §247.16(h) of the proposed CPG II, EPA proposed to designate plastic envelopes. In Section G-8 of the accompanying draft RMAN II, EPA recommended that plastic envelopes contain the levels of recovered materials listed in Table 23.

Table 23

Draft Recovered Materials Content Recommendations for Plastic Envelopes

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic	25	25 to 35

In the background document to the proposed CPG II, EPA discussed two types of plastic envelopes—Tyvek® and extruded plastic. EPA stated that it was unable to identify any government users of extruded plastic envelopes and requested information on government agency usage and performance of this item. No commenters submitted information about extruded plastic envelopes. In addition, EPA received no comments on the proposed plastic envelope designation and the draft content recommendations for this item.

Therefore, based on the research conducted for the proposed CPG II and draft RMAN II, EPA is designating plastic envelopes in the final CPG II and including the draft purchasing recommendations for this item in the final RMAN II.

2. Summary of Comments and Agency's Response

No commenters submitted information about extruded plastic envelopes. In addition, EPA received no comments on the proposed plastic envelope designation or on the draft content recommendations for this item.

3. Rationale for Designation

EPA believes that plastic envelopes satisfy the statutory criteria for selecting items for designation.

a. Use of Materials in Solid Waste

Tyvek® envelopes contain postconsumer recovered HDPE. Other types of plastic envelopes are made with HDPE and/or LDPE plastic. As discussed in Appendix V of this report, plastic is a significant component of MSW.

b. Technically Proven Uses

Plastic envelopes are used in heavy-duty, security-related, and other specialized mailing applications. Plastic envelopes are used most commonly by the express mail, insurance, bank, legal, medical, and international mail industries. The envelopes are lightweight, tear-resistant, durable, and water-resistant. Due to their light weight, plastic envelopes require less postage, enabling them to compete directly with paper envelopes for traditional uses. Manufacturers of

plastic envelopes offer a variety of standard sizes and styles but also make customized envelopes according to customer specifications.

USPS, the U.S. Government Printing Office (GPO), and GSA require Tyvek® envelopes in their specifications, because it meets these agencies' requirements. USPS requires "DuPont Tyvek®," because it meets its requirements for weight, strength, and friction coefficient (the envelope's ability to withstand mechanized sorting equipment). GPO's specification requires "Tyvek® envelopes or similar," because GPO has found that this type of envelope meets the agency's strength requirements. GSA recently issued a Technical Purchase Description (specification) for plastic envelopes that specifies "DuPont Tyvek® or equal," thereby allowing other brands to compete.

One manufacturer of extruded plastic envelopes stated that its plastic technology makes envelopes adaptable to water-based labels and stamps. The envelopes are waterproof, tear-resistant, and lightweight. The manufacturer had an independent certification organization verify its recycled content claims. According to manufacturers, extruded plastic envelopes have been proven to perform well in many capacities, including: transfers of checks or money in the banking industry; sending payroll checks, computer tapes, and reports inter-company or cross-country; mailing small parts in manufacturing industries; mailing lab bags, specimen samples, and x-rays in the medical industry; and mailing catalogs, books, art boards and proofs, film, and clothing, such as t-shirts or panty-hose.

DuPont stated that the price of a virgin Tyvek® envelope is the same as a recovered materials-content Tyvek® envelope, although DuPont does not ship the virgin envelope anymore. A manufacturer of a coextruded recovered content plastic envelope claims that its product is 10 to 15 percent more expensive than virgin material equivalents. Manufacturers of extruded plastic envelopes claim their products cost approximately 30 percent less than Tyvek® envelopes.

c. Impact of Government Procurement

USPS purchases $20.7 million worth of Tyvek® envelopes annually, primarily for Express Mail and Priority Mail. Federal agencies purchased approximately $1,393,000 worth of plastic envelopes in fiscal year 1995 through GSA. Tyvek®, however, is the only brand that has ever won GSA contracts. Tyvek® envelopes are available through GSA's Federal Supply Schedule (Single Award Schedule).

4. Designation

EPA is designating plastic envelopes containing recovered plastics. This designation does not preclude a procuring agency from purchasing envelopes manufactured from another material, such as paper. It simply requires that a procuring agency, when purchasing plastic envelopes made from plastic, purchase these items with recovered materials when these items meet applicable specifications and performance requirements.

5. Preference Program

EPA is recommending the draft RMAN recommendations in the final RMAN II. EPA recommends that, based on the recovered materials content levels shown in Table 24 and the corresponding table in the RMAN II, procuring agencies establish minimum content standards for use in purchasing plastic envelopes.

Table 24

Final Recovered Materials Content Recommendations for Plastic Envelopes

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastic	25	25 to 35

6. Background for Recommendations

Plastic envelopes are used in heavy-duty, security-related, and other specialized mailing applications. Plastic envelopes are used most commonly by the express mail, insurance, bank, legal, medical, and international mail industries. The envelopes are lightweight, tear-resistant, durable, and water-resistant. Due to their light weight, plastic envelopes require less postage, enabling them to compete directly with paper envelopes for traditional uses. Manufacturers of plastic envelopes offer a variety of standard sizes and styles and also make customized envelopes according to customer specifications.

There are two types of plastic envelopes currently on the market: Tyvek® envelopes and extruded envelopes. Tyvek® is a trademarked, patented, spunbonded olefin material manufactured by only one company. Tyvek® is formed by bonding together plastic fiber filaments using heat and pressure, giving the final envelope a look and feel very similar to paper. Tyvek® envelopes are made with HDPE, 25 percent of which is from postconsumer milk and water bottles.

Plastic envelopes other than Tyvek® are manufactured with HDPE and/or LDPE and are referred to as tri-extruded polyolefins or polyethylenes. These envelopes contain three layers of extruded plastic and have the appearance and texture of a thick plastic bag. The inside layer of the envelope makes it opaque, the core layer gives the envelope its strength, and the outside layer provides a printing surface. EPA identified two manufacturers of extruded plastic envelopes. Table 25 provides information on the availability of plastic envelopes manufactured from recovered materials.

Table 25

Recovered Materials Content of Plastic Envelopes

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
HDPE	Company A: minimum of 25 Company B: up to 25 (upon request)	minimum of 25 25
HDPE and LDPE	Company C: 25	35

7. Specifications

The GSA, GPO and USPS all currently purchase plastic envelopes made from Tyvek® containing recovered HDPE. GSA specifies "DuPont Tyvek® or equal." USPS requires "DuPont Tyvek®," and GPO requires "white spunbonded polyethylene with the characteristics of DuPont's product no. 1073." The title of the solicitation, however, states "Tyvek® envelopes or similar."

The U.S. Navy requests that plastic envelopes not be sent to ships in order to minimize onboard disposal of plastic.

XIII. MISCELLANEOUS PRODUCTS

A. Pallets

1. Background

In §247.17(a) of the proposed CPG II, EPA proposed to designate pallets containing recovered wood, plastic, or paperboard. In Section H-1 of the accompanying draft RMAN II, EPA recommended that pallets contain the levels of recovered materials listed in Table 26.

Table 26

Draft Recovered Materials Content Recommendations for Pallets

Material	Postconsumer Content (%)
Wood	95 to 100
Plastic	100
Paperboard	50

EPA requested information on the performance of plastic pallets for non-military federal agency use and military applications. No additional information was submitted to EPA, however. In addition, no comments were received on the proposed pallet designation and the recommended content levels for wooden and paperboard pallets.

EPA received two comments (from the same commenter) regarding the recovered materials content differences between plastic lumber pallets and thermoformed plastic pallets. The commenter recommended that EPA lower the recommended content level for plastic pallets to account for the lower levels used in thermoformed plastic pallets. EPA conducted additional research into the use of recovered materials in plastic pallets. Based on this information, EPA believes that it is better to recommend different content levels for plastic lumber and thermoformed plastic pallets. The comments, EPA's research, and EPA's response are summarized in the following subsection.

Based on EPA's original research for the proposed CPG II and draft RMAN II, the comments received, and additional research conducted by EPA, the Agency is designating pallets in the final CPG II. In the final RMAN II, EPA is including the draft recommendations for wooden and paperboard pallets and providing revised recommendations for purchasing plastic pallets, as discussed below.

2. Summary of Comments and Agency's Response

Comment: Cadillac Products, a manufacturer of plastic pallets containing postconsumer plastic, stated that the 100 percent postconsumer content level for plastic pallets is too high for most applications. According to this commenter, no plastic pallet containing 100 percent postconsumer plastic has received substantial market acceptance either because they are too heavy or because they are too flexible or deflect too much. The commenter suggested a content of 25 to 50 postconsumer plastic.

Response: There are two types of plastic pallets—plastic lumber pallets and thermoformed plastic (sheeted plastic formed over a mold). There are concerns regarding load capacity, flexibility, and durability of both types of plastic pallets, particularly when heavier loads are applied. However, both types of plastic pallets are used by private sector organizations, and the USPS developed a specification for and uses thermoformed plastic pallets.

In its research for the proposed CPG II, EPA noted that, while most manufacturers of plastic lumber pallets used 100 percent postconsumer material, several manufacturers of thermoformed plastic pallets used 25 to 50 percent postconsumer material. EPA did not distinguish between plastic lumber and thermoformed plastic pallets in the content recommendations in the draft RMAN II, however. Additional EPA research confirmed that there are differences between these two types of plastic pallets, both in postconsumer content and in performance. EPA has concluded that these two types of pallets should be viewed as two different products. In the final RMAN II, therefore, EPA is retaining the 100 percent postconsumer content recommendation for plastic lumber pallets and adding a 25 to 50 percent postconsumer content recommendation for thermoformed plastic pallets.

3. Rationale for Designation

EPA believes that pallets satisfy the statutory criteria for selecting items for designation.

a. Use of Materials in Solid Waste

Pallets are made with postconsumer wood, LDPE, PE, HDPE, polycarbonate, and old corrugated containers. The recovered content plastic pallets are available in two forms: extruded plastic lumber and thermoformed plastic (sheeted plastic formed over a mold). Plastic, wood, and corrugated containers constitute a significant component of the municipal solid waste stream, as discussed in Appendix V.

b. Technically Proven Uses

The National Wooden Pallet and Container Association (NWPCA) estimates that there are some 2,000 different designs of wooden pallets and a variety of sizes. The U.S. Forest Service's Brooks Forest Products Center in Blacksburg, Virginia, tests new and recycled wooden pallets

collected across the United States. The center groups recycled pallets into A, B, and C categories, with A pallets being the highest quality and requiring the least repair. The center tests the pallets both by subjecting them to pressure in a large press and by simulating actual pallet use. In the press test, A pallets perform better than new ones, B pallets perform as well as new ones, and C pallets perform worse than new ones. When recycled pallets are subjected to tests simulating actual uses, however, the recycled pallets do not perform as well as new pallets.

The Defense Depot Susquehanna, Pennsylvania (DDSP) has been remanufacturing wooden pallets and using remanufactured wooden pallets for about two years. DDSP uses about 12,000 to 14,000 pallets per month, 2,000 of which are remanufactured pallets. Users have been pleased with the remanufactured pallets and high-ranking officials recognize and support their use. According to the U.S. Army Logistics Support Activity Packaging, Storage, and Containerization Center (LOGSA PSCC), whose laboratory is currently testing and evaluating several remanufactured wood pallets designs provided by DDSP, remanufactured pallets, achieve a reasonable performance level when tested with light (1,500 pound) military loads. They are considered unacceptable for extensive field operations and extended use in the military supply system. For example, Army and Marine Corps helicopter lift and Navy ship-to-ship transfer operations require a full military load performance capability to achieve successful military distribution goals. DDSP anticipates that remanufactured wood pallets can be successfully used in predictable distribution operations that require minimal handling, transportation, and short-term storage.

The U.S. Army LOGSA PSCC testing laboratory, at the request of DDSP, is attempting to develop a pallet requirements/performance document using the recently promulgated American Society of Mechanical Engineers (ASME)/American National Standards Institute (ANSI) MH1.8M standard, titled “Wood Pallets”, as the base document for the military remanufactured wood pallet. The military requirements will be included as an appendix to the ASME document, subject to final approval by the military services and ASME/ANSI standards committee.

The Center also tests plastic pallets submitted by industry for potential military use. The Center conducted test projects on HDPE pallets in 1994 and 1995. The tests included rough-handling, free-fall drop tests, compressive load tests, and other tests. The Center found that HDPE did not meet military requirements for a distribution pallet. The pallets tests were provided by suppliers from production runs and the percentage of recovered HDPE content was not known. The tests addressed performance for military use only and did not address performance for non-military use (other federal agencies).

The Forest Products Center tested pallets made from plastic lumber containing recovered materials. The center found that plastic lumber pallets are heavy and sag when exposed to high temperatures, although this can also happen with virgin and recycled materials content plastic lumber pallets as well. The U.S. Army Corps of Engineers agrees with this assessment but stated that these issues can be overcome by proper engineering and design (adding a cross bar or another pallet as support for use with heavy loads.) A manufacturer of plastic pallets made from sheets of

HDPE (similar to plastic lumber) stated that its pallets work well for the oil and chemical industries, because they prevent containers from being punctured by nails or broken boards. Molded plastic pallets, according to another manufacturer, perform as well as wooden ones unless used in extreme cold temperatures. According to the Forest Products Center, molded plastic pallets tend to be more expensive than wooden pallets and cannot be repaired when damaged. As explained below, however, plastic pallet users can make arrangements with manufacturers to buy back damaged plastic pallets.

A large regional grocery chain recently switched from wooden to molded plastic pallets in all of its 865 stores. The company has found plastic pallets to be less expensive over the long term than wooden ones, which needed to be repaired or replaced after every 10 turns (round trips). The molded plastic pallets are lighter than wooden ones and have no nails, resulting in fewer worker injuries. The pallets are durable, and the grocery chain has made arrangements with some of its suppliers to buy them back when they are too damaged to use. Another major company with 600,000 plastic lumber pallets in circulation, noted that plastic pallets also outperform hardwood pallets and last longer but weigh 5 to 6 pounds more than conventional wooden pallets.

The Forest Products Center also tested corrugated pallets but found them to be weaker than wooden pallets. The *McRecycle USA Database Listing* includes four manufactures of recycled content pallets made from old corrugated containers and "paper." EPA successfully contacted one of these manufacturers who stated that its pallets can withstand weights of up to 2,800 pounds and perform as well as wooden pallets as long as they are not left standing in open water.

Although plastic and paper pallet manufacturers are listed in its database, McDonald's Corporation currently uses only wooden pallets. It has a contract arrangement with a wooden pallet recycler, who repairs the company's old pallets and supplies new ones.

c. Impact of Government Procurement

The Defense Logistics Agency (DLA) procures pallets for the federal government agencies (primarily the Department of Defense) through the Defense Industrial Supply Center in Philadelphia, Pennsylvania. DLA estimates that it purchases "millions" of pallets each year, using at least 20 different national stock numbers (NSNs), each of which specifies the size and shape of the pallet and the type of wood to be used.

The Forest Products Center is concerned that recycled wooden pallets might not be available in the numerous sizes and designs that government agencies typically purchase, because most recycled wooden pallets are the 48 by 40-inch, multiple-use style frequently used by the grocery industry. According to the Forest Products Center, the government purchases 40- by 48-inch pallets rather than 48- by 40-inch pallets. This distinction is important, because a pallet's dimensions affect how a forklift can lift it. For example, a 48- by 40-inch stringer pallet will have

different fork entry points than a 40- by 48-inch stringer pallet.

EPA learned that GPO purchased 750 recycled content corrugated pallets but discontinued using them, because paper creased when placed on the pallets. GPO currently uses wooden pallets, which it reuses as many times as possible before a contractor removes them for recycling.

According to pallet recyclers, recycled wooden pallets range in price from $2.75 to $15 per pallet. According to the Forest Products Center, the average price ranges from $4 to $5.50. The State of New York indicated the recycled wooden pallets that it has purchased are 40 percent less expensive than those made from nonrecovered timber. The Forest Products Center estimated that recycled wooden pallets cost 50 to 70 percent less than new pallets. Army Logistics estimates that remanufactured pallets cost half as much as new ones.

According to the manufacturers contacted by EPA, plastic pallets containing recovered materials range in price from $2 to $32 depending on the manufacturing process. Recycled content corrugated pallets cost from $5 to $12.

Because plastic and corrugated pallets represent a small percentage of the pallet industry, there initially might not be sufficient supply to meet government demand. EPA believes, however, that increased demand might encourage manufacturers to produce more pallets containing recovered materials. The higher price of plastic pallets also might be prohibitive, even though many users have found them to be less expensive than wooden pallets over the long term.

4. Designation

EPA is designating pallets containing recovered plastic, wood, or paperboard. This designation does not preclude a procuring agency from purchasing pallets manufactured from another material. It simply requires that a procuring agency, when purchasing pallets made from wood, plastic, or paperboard, purchase these items made with recovered materials when these items meet applicable specifications and performance requirements.

5. Preference Program

In the draft RMAN II, EPA recommended that procuring agencies establish minimum content standards for wooden, plastic, and paperboard pallets. EPA provided recommended content ranges for each type of pallet. Based on additional research conducted by the EPA and comments received, EPA has revised Table 26 and has added a new plastic pallet category, “thermoformed” along with a new corresponding postconsumer content recommendation. Table 27 reflects these changes (changes italicized).

Table 27

Final Recovered Materials Content Recommendations for Pallets

Product	Postconsumer Content (%)
Wooden Pallets	95 to 100
Plastic Lumber Pallets	100
Thermoformed Plastic Lumber Pallets	25 to 50
Paperboard Pallets	50

6. Background for Recommendations

Pallets are used for shipping a variety of products including food, paper, and military supplies. Pallets can be manufactured of wood, plastics such as HDPE, and old corrugated containers (OCC).

Wooden pallets can be repaired or rebuilt with wood from old pallets. The *National Wood Recycling Directory* lists 95 pallet recyclers. EPA obtained information from eight manufacturers of recovered content wooden pallets, seven of which use between 95 to 100 percent postconsumer content. Approximately 80 percent of pallets received by recyclers in 1993 were multiple-use, 48- by 40-inch pallets similar to those typically used by the grocery industry. Approximately 61 percent of the pallets received were repaired, 13 percent required no repair and were simply reused, and 15 percent were broken down into usable parts. Approximately 80 percent of these parts were used to rebuild pallets.

Plastic pallets are typically manufactured with postconsumer HDPE, although EPA identified one manufacturer that also uses recovered polycarbonate. They can be molded products or constructed from plastic lumber. The McDonald's Corporation's *McRecycle Database* lists 15 manufacturers of recycled content pallets made from molded HDPE, polyethylene, and unspecified plastics. EPA obtained information from 19 manufacturers of recovered content plastic pallets, 15 with 100 percent postconsumer content.

Corrugated pallets containing recovered materials are manufactured from OCC. Recycled content corrugated paperboard is produced in sheets, which are folded and glued to form pallets. EPA obtained information from two manufacturers of recycled content pallets made from corrugated paperboard, both with 50 percent postconsumer content. Plastic and corrugated pallets together represent less than 5 percent of the pallet industry. Table 28 provides information provided by manufacturers of pallets made with recovered materials.

Table 28

Recovered Materials Content of Pallets

Product	Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Wooden Pallets	Wood	Company A: 100	100
		Company B: 95	95
		Company C: 95	95
		Company D: 100	100
		Company E: 95	95
		Company F: 40	40
		Company G: 100	100
		Company H: 100	100
Plastic Pallets	HDPE and polycarbonate	Company I: Unknown	100
	HDPE	Company J: 100	100
		Company K: 100	100
		Company L: 50	50
		Company M: 100	100
		Company N: 25	25
		Company O: 90	90
		Company P: 100	100
		Company Q: 100	100
		Company R: 25	25
	Unknown plastic	Company S: 100	100
		Company T: 100	100
		Company U: 100	100
		Company V: 100	100
	LDPE	Company W: 100	100
	PE	Company X: 100	100
		Company Y: 100	100
		Company Z: 100	100
	PP, HDPE, PS	Company AA: 100	100
Corrugated	OCC	Company BB: 50	50

7. Specifications

Numerous design and performance specifications exist for new wood pallets. A widely used standard is that issued by the Grocery Manufactures of America (GMA for 48- by 40-inch stringer pallets (a stringer pallet is constructed with three continuous strips separating the pallet deck from the pallet bottom). Many purchasers refer to the "GMA spec," although many actually use a modified version of it.

EPA identified several activities currently underway to develop specifications for remanufactured pallets. The NWPCA is developing a standard through the ANSI for repairable 48- by 40- inch lumber-deck stringer and block pallets (a block pallet separates the pallet deck and bottom with evenly spaced rectangular, square or circular blocks). The ANSI standard is scheduled for release in late 1997 and addresses two categories of pallets: (1) limited-use pallets that can be used for up to 10 trips before needing repairs and for which specifications must be established by visual inspection before repair, and (2) multiple-use pallets that can be used for more than 10 trips before needing repairs based on known performance specifications. Multiple-use pallets can only be repaired with new materials, according to NWPCA standards. Pallets must be repaired if more than 20 percent of components are damaged. Limited use pallets' stringers or blocks may not be repaired; rather, all missing parts must be replaced. The replacement wood must be of equivalent or stronger species. No specific pallet performance level is ensured, however, by following the pallet repair requirements.

DLA procures pallets for federal government agencies (primarily the Department of Defense) through the Defense Industrial Supply Center in Philadelphia, Pennsylvania. DLA uses over 20 different NSNs, each of which specifies the size and shape of the pallet and the type of wood to be used. The Army, Navy, Air Force, and Marine Corps may be interested in using remanufactured pallets because they cost less than new pallets. The DDSP has been remanufacturing wood pallets and using them in military distribution.

XIV. OTHER ITEMS CONSIDERED FOR CPG II DESIGNATION

A. Items Still Under Consideration

In the background document for the proposed CPG II, EPA identified items that were still under consideration by EPA for future designation. EPA requested additional information about these items, but no information was provided by commenters during the comment period on the proposed CPG II. EPA will continue to consider the following items:

Construction Products:
—Carpet cushion and backing
—Embankments
—Flowable fill
—Geotextiles
—Industrial Drums
—Landscape timbers and posts
—Nylon carpet
—Plastic pipes

Miscellaneous Products:
—Absorbents and adsorbents
—Awards and plaques
—Bike racks
—Food waste compost
—Limited use protective apparel
—Mats
—Mattresses and pillows
—Park and recreation furniture
—Playground equipment
—Railroad crossings
—Signage
—Strapping

All available information gathered by EPA on these items is presented in two reports, entitled "Research on Potential Items for Designation in the Comprehensive Procurement Guideline" and "Recovered Material Product Research for the Comprehensive Procurement Guideline II." These reports have been placed in the RCRA Docket.

B. Items Dropped from Further Consideration

In the background document for the proposed CPG II, EPA stated that the following items are no longer being considered for designation in the CPG: lead-acid batteries, water retention systems, flat sheet glass, wall covering, ceramic and glass tile, concrete reinforced glass

fiber, curbing, dock bumpers, glass bead for reflective paint, magazine boxes, rulers, and pallet stretch wrap. EPA requested additional information demonstrating that the items should be reconsidered for possible future designation. No comments or information were submitted on these items. Thus, they are no longer under consideration by EPA.

XV. AVAILABILITY OF DESIGNATED ITEMS

EPA has developed lists of manufacturers and vendors of items designated in the CPG II. These lists will be updated periodically as new sources are identified and product information changes. To assist procuring agencies, the lists can be reviewed in the RCRA Information Center and are available at no charge by calling EPA's RCRA Hotline at 800 424-9346 or 703 412-9810. They are also accessible via the Internet at http://www.epa.gov/epaoswer/non-hw/index.htm#procure. Procuring agencies should contact the manufacturers directly to discuss their specific needs and to obtain detailed information on the availability and price of recycled products meeting those needs.

GSA publishes the *Environmental Products Guide*, which lists items available through its Federal Supply Service. The guide is updated periodically as new items become available. Copies can be obtained by contacting GSA's Centralized Mailing List Service in Fort Worth, Texas at 817 334-5215.

In addition to the information provided by EPA and GSA, there are other publicly available sources of information about products containing recovered materials. The "Official Recycled Products Guide" (RPG), for example, was first published in March 1989 and is updated annually. It provides a broad range of information on recycled products. The information includes product descriptions, company names, addresses, contact names, telephone and fax numbers, minimum recycled content information and identifies the type of company (manufacturer or distributor). Price information is not included. The RPG is available on a subscription basis on the World Wide Web (http://www.recylcingdata.com) from Recycling Data Management Corporation, 800 267-0707.

Some private corporations have researched recycled content products and are willing to make this information publicly available. For example, the McDonald's Corporation, as part of their *McRecycle USA* program, established a registry service for manufacturers and suppliers of recycled products.

State and local recycling or environmental programs are also a potential source of information on local distributors, product availability, and price. A list of state purchasing/procurement officials is located in the RCRA Docket and is updated periodically.

XVI. ECONOMIC IMPACT ANALYSIS

Details of the economic impact of CPG II are described in the document entitled *Economic Impact Analysis for the Comprehensive Procurement Guidelines II* which is included in the RCRA Docket for CPG II.

XVII. OTHER SUPPORTING INFORMATION

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"National Post-Consumer Plastics Recycling Rate Study" American Plastics Council, 1996.

"Resins '95," Modern Plastics, 25(1): 1995.

B. Non-Paper Office Products

"Resource Guide to Business Products Manufacturers Recycling Products and Programs," Business Products Industry Association, 1994.

C. Multi-Material

"Buy Recycled Guidebook," Buy Recycled Business Alliance, National Recycling Coalition, 1996.

"A Model for a Comprehensive Waste Reduction Procurement Program: Technical Guide for Purchasing Officials," prepared for the City of Tucson, Tucson, AZ. by R.W. Beck and Associates and Markets For Recycled Products, 1994.

"King County Recycled Product Procurement: 1995 Annual Report," Recycling Product Procurement Program, King County Purchasing Agency, 1995.

"McRecycle USA Database Listing," McDonald's Corporation, 1995.

"NRC 1995 Program Book," 14th Annual Congress & Exposition, National Recycling Coalition, Sept. 11-13, 1995.

"Characterization of Municipal Solid Waste in the United States: 1996 Update," U.S. EPA, EPA530-R-97-015, April 1997.

"Buy Recycled Training Manual: A Guidebook for Government Buyers and Using Agencies," Northeast Maryland Waste Disposal Authority, 1995.

"The Official Recycled Products Guide," Recycling Data Management Corporation, 1996.

"Opportunities for Government Procurement of New and Innovative Recycled Content Products," Final Report, prepared for EPA Region 1, by Yale University, School of Forestry and Environmental Studies, 1995.

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undated.

"Potential Items for Future Designation: Comprehensive Guideline for Procurement of Products Containing Recovered Content," Final Report, prepared for EPA Office of Solid Waste, by Science Applications International Corporation, 1995.

"Research on Potential Items for Designation in the Comprehensive Procurement Guideline," Report prepared for EPA Office of Solid Waste, by Eastern Research Group, Inc., 1995.

"Manufacturing from Recyclables: 24 Case Studies of Successful Recycling Enterprises," U.S. EPA, EPA530-R-95-001, 1995.

"Environmental Products Guide," U.S. General Services Administration, Office of Acquisition, Acquisition Management Center, Environmental and Engineering Policy Division, 1995.

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“Facts about Steel-1997,” Steel Recycling Institute

"Recycled-Content Construction Products," California Integrated Waste Management Board, 1995.

"A Resource Guide to Recycled-Content Construction Products," City of Los Angeles, Board of Public Works, Integrated Solid Waste Management Office, 1995.

"Local Government Sustainable Buildings Guidebook," Public Technology, Inc., 1993.

"The Harris Directory," Stafford-Harris, Inc., 1996.

E. Wood Waste

"Wood You Recycle? A Guide to Wood Waste Recycling in the L.A. Area," City of Los Angeles, Board of Public Works, Integrated Solid Waste Management Office, 1993.

F. Rubber Products

"Recycled Rubber Products Catalog," Scrap Tire Management Council, 1995.

"Puncturing the Scrap Tire Problem," R. Steuteville, *BioCycle* 36(10):51-52, 1995.

G. Pallets

"Pallet Life Cycle Test Report," USPS Engineering Material Handling Office, October 1994.

"Integrating Wood into the Recycling Loop," Lisa Gitlin, Recycling Today, June 1991.

"Construction Waste & Demolition Debris Recycling...A Primer," prepared for Solid Waste Association of North America, EPA, and MITE, by Gershman, Brickner & Bratton, Inc.

"National Wood Recycling Directory," American Forest & Paper Association, January 1996.

"Recovered Paper Statistical Highlights," American Forest & Paper Association, 1996.

"Test and Evaluate Commercial Plastic Pallets" (TE-LS-64-94), U.S. Army Logistics Support Activity Packaging, Storage, and Containerization Center, February 1995.

"Test and Evaluate Special Plastic Pallet" (TE-LS-25-94), U.S. Army Logistics Support Activity Packaging, Storage, and Containerization Center, April 1994.

H. Latex Paint

"Latex Paint," Science Applications International Corporation, Inc., 1995.

"Postconsumer Paint Management Manual," National Paint and Coatings Association, 1993.

"Bid Specification: Paint, Latex, Recycled," 8010-5BS-001, State of Louisiana, March 1995.

"Promoting Paint Recycling and Developing Markets for Recycled Paint," G. Purin, Marin County Office of Waste Management, San Rafael, CA, no date.

"Massachusetts Procurement and General Services Contract #5060, Item #00100: Interior Latex Eggshell & Interior Latex Flat," Department of Procurement and General Services, Commonwealth of Massachusetts, no date.

"Banner Recycled Paint References," Eco-Products, April 1996.

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"Curbside Collection & Recycling of Latex Paint and Used Motor Oil," Report prepared by Marin County Office of Waste Management for the California Integrated Waste Management Board.

"Paint Reuse and Recycling Consensus Meeting Summary," Waste Watch Center, Nov. 5-6,

1992.

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Standard Consumer Specification for Garden Hose, D390-90, ASTM, 1996.

"Watering Hoses," GC-01, Green Seal, Inc., April 4, 1994.

J. Temporary Traffic Control Devices

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FINAL COMPREHENSIVE PROCUREMENT GUIDELINES (CPG) II

AND

FINAL RECOVERED MATERIALS ADVISORY NOTICE (RMAN) II

BACKGROUND DOCUMENT

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APPENDIX I

DISCUSSION OF RCRA SECTION 6002 REQUIREMENTS

APPENDIX I

Discussion of RCRA Section 6002 Requirements

This appendix provides detailed information regarding the applicability of Section 6002 of the Resource Conservation and Recovery Act of 1976 (RCRA or the Act).

A. Who Is a Procuring Agency?

Many of the RCRA Section 6002 requirements apply to "procuring agencies," which are defined in RCRA Section 1004(17) as "any Federal agency, or any state agency or agency of a political subdivision of a state that is using appropriated Federal funds for such procurement, or any person contracting with any such agency with respect to work performed under such contract." Under the statute, responsibility for complying with RCRA Section 6002 rests with each individual procuring agency. RCRA identifies three types of "procuring agencies": (1)federal agencies, (2) state or local agencies using appropriated federal funds, and (3) contractors to (1) and (2). Procuring agency requirements are discussed in detail below. Also refer to Appendix II, III, and IV for additional information about affirmative procurement requirements.

Private recipients of federal funds (e.g., non profit organizations or individual recipients of Farm Home Administration loans or other federal loans, grants, or funds under a cooperative agreement) are not procuring agencies and, therefore, are not subject to RCRA Section 6002. This is true whether the originator of the grant, loan, or cooperative agreement is a Federal agency or a state or local agency recipient of Federal funds.

1. Federal, state, and local government agencies

Federal agencies are always procuring agencies, because the RCRA Section 6002 requirements apply to federal agencies whether or not appropriated federal funds are used for procuring designated items. All federal agencies are procuring agencies regardless of their funding authority (e.g., revolving funds, etc.). The RCRA Section 6002 requirements apply only when federal agencies procure designated items, however. They do not apply when federal agencies simply disburse funds to state or local agencies; in these instances, the federal agencies are not purchasing or acquiring anything. State or local agencies are procuring agencies and must comply with the guidelines if they use appropriated federal funds for procurement of designated items. RCRA

requirements apply to individual state agencies, not to a state as a whole. For example, if a state receives several hundred thousand dollars in grant monies, only the state agency or agencies purchasing $10,000 worth or more of a designated product must comply with Section 6002 requirements.

On October 14, 1994, the Office of Management and Budget (OMB) published revisions to Circular A-102 to clarify the circumstances in which RCRA Section 6002 applies to state and local recipients of Federal funds.

2. Contractors

Contractors must comply with Section 6002 with respect to work performed under the contract if they (1) contract with a federal agency or a state agency that is using appropriated Federal funds for a procurement and (2) purchase or acquire a designated item whose purchase price exceeds $10,000 or purchased $10,000 or more worth of the item during the previous year. Subcontractors are not procuring agencies; Section 6002 limits contractors subject to its requirement to direct contractors with a federal agency or state or local "procuring agency."

It is immaterial for purposes of the $10,000 threshold whether the contractor purchased or acquired the designated items as a "procuring agency" (with respect to work performed under a contract with a Federal or state agency) or in its private capacity. However, the obligations of Section 6002 are prospective. The contractor must determine whether the $10,000 threshold is met <u>only</u> after it is a "procuring agency." That is, purchases exceeding the $10,000 threshold in the year prior to the year in which a contractor becomes a "procuring agency" do not trigger Section 6002 requirements. Furthermore, while contractors are subject to the Section 6002 requirements once they exceed the threshold, those requirements apply only with respect to work performed under the contract (i.e, when supplying the designated item to any state or federal agency).

For example, in Year One, Contractor X contracts to supply $500 of hydraulic mulch to a state agency using appropriated federal funds to purchase the hydraulic mulch. Therefore, in Year One, Contractor X is a "procuring agency." During Year One, Contractor X also purchases hydraulic mulch for its own use for its other customers, with total purchases of hydraulic mulch exceeding $10,000. In Year One, while Contractor X is a procuring agency, Contractor X is not subject to the RCRA Section 6002 requirements for hydraulic mulch supplied to the state agency, because the contract price of the mulch does not exceed $10,000. In Year Two,

Contractor X is subject to RCRA Section 6002 requirements for hydraulic mulch regardless of the amount of the contracted purchase, because, while a "procuring agency" in Year One, it purchased in excess of $10,000 of hydraulic mulch.

In another example, in Year One, Contractor Y purchases $10,000 of hydraulic mulch, but none was purchased on behalf of a government agency using appropriated federal funds. In Year One, Contractor Y is not a procuring agency. In Year Two, Contractor Y contracts to supply less than $10,000 of hydraulic mulch to a state agency using appropriated federal funds. In Year Two, Contractor Y is a procuring agency but is not subject to RCRA Section 6002 requirements, because it was not a procuring agency during the previous year when it acquired in excess of $10,000 of hydraulic mulch.

Contractors can require certifications of recycled content items to be submitted with offers. Alternatively, EPA recommends that when an estimate has been provided in a bid, the certification of what materials were actually used in the performance of the contract should be submitted with the last invoice.

B. To Which Purchases Does Section 6002 Apply?

1. Direct and indirect purchases

The RCRA Section 6002 requirements apply to both direct and indirect purchases. Purchases made as a result of a solicitation by procuring agencies for their own general use or that of other agencies (e.g., purchases by the U.S. GSA's Federal Supply Service) are "direct" purchases. Purchases of items as part of a contract also are "direct" purchases. Indirect purchases are purchases by a state or local agency using appropriated federal funds or, in some instances, its contractors. Therefore, purchases of designated items meeting the $10,000 threshold made by states, political subdivisions of states, or their contractors are subject to RCRA Section 6002.

2. Incidental purchases do not apply

The procurement requirements do not apply to purchases if they are unrelated to or incidental to the federal funding, (i.e., not the direct result of the funds disbursement). For example, if an entity has a federal contract to do research and builds or expands a laboratory to conduct the research, the construction is incidental to the contract, as is the purchase of construction materials.

3. Block grants, commingled monies, and leases

RCRA Section 6002 procurement requirements apply whenever federal monies, including block grants, are used, whether or not they are commingled with non-federal funds. In addition, RCRA Section 6002 also applies to a procuring agency's lease contracts for designated items. The Federal Acquisition Regulation defines "acquisition" to include supplies or services (including construction) acquired by means of a lease (48 CFR 2.101). Under the definition of "procuring agency," therefore, lessor contractors are subject to the RCRA Section 6002 requirements for work performed under the lease contract.

RCRA Section 6002 also applies to Department of Transportation grant programs. The conference committee report from the Hazardous and Solid Waste Amendments of 1984 (Cong. Rec. H 11138 [Oct. 3, 1984]) states:

> *To assure the fullest participation by procuring agencies, the Conferees wish to resolve any ambiguity with respect to §6002's coverage of the Department of Transportation, in particular the Federal Highway Administration (FHWA). The FHWA is a "procuring agency" under the Solid Waste Disposal Act and is therefore fully responsible for implementing the guidelines and other requirements of §6002. It is the intent of Congress that both FHWA's direct procurement and indirect Federal-aid programs (Federal Highway Trust Fund) be covered by the requirements of §6002 as amended by this Act. Indirect purchases by the Federal Aviation Administration are also covered under Section 6002 in the same manner as is the FHWA. Coverage of the FHWA's direct and indirect procurement activities under this amendment extends to the review of procurement specifications pursuant to Section 6002(d), as amended, in addition to the affirmative procurement program required under this section.*

C. What Is the $10,000 Threshold?

RCRA Section 6002 procurement requirements apply to any purchase by procuring agencies of an item costing more than $10,000 or when the procuring agencies purchased $10,000 worth of the item or of functionally equivalent items during the preceding fiscal year.

RCRA Section 6002 clearly sets out a 2-step procedure for determining whether the $10,000 threshold has been reached. First, procuring agencies must determine whether they purchased $10,000 worth of a designated item or functionally equivalent items during the preceding fiscal year. If so, the requirements of RCRA Section 6002 apply to all purchases of these items occurring in the current fiscal year. Second, if the procuring agencies did not procure $10,000 worth of a designated item during the preceding fiscal year, they are not subject to RCRA Section 6002 unless they make a purchase of the item exceeding $10,000 in the current fiscal year. The Section 6002 requirements then apply to the $10,000 purchase of the designated item; to all subsequent purchases of the item made during the current fiscal year, regardless of size; and to all procurements of the designated item made in the following fiscal year.

Section 6002(a) does not specify that the procurement requirements are triggered when the aggregate quantity of items purchased during the current fiscal year is $10,000 or more. Procuring agencies need not keep a running tally during the year of procurements of designated items. Rather, they should compute their total procurements of a designated item once at the end of the fiscal year and only if they intend to claim an exemption from the requirements of RCRA Section 6002 in the following fiscal year.

The RCRA Section 6002 requirements apply to each Federal agency as a whole. During each fiscal year, each major Federal agency as a whole, purchases, or causes the purchase of, more than $10,000 worth of many of the designated items. Therefore, the requirements of RCRA Section 6002 apply to all procurements of these items by these agencies and their subunits.

1. Purchases of individual items or groups of items

As stated above, the $10,000 threshold can apply to agencies' purchases of either individual items or categories of items. Within the paper and paper products category, for example, if an agency purchases $4,000 worth of computer paper, $3,000 worth of federal forms, and $3,000 worth of other office papers, these combined

purchases achieve the threshold for that designated item, and the agency should develop an affirmative procurement program for all paper and paper products containing recovered materials.

2. The cost of services

If the cost of services and the material cost are inextricably linked, the $10,000 threshold can be applied to the combined cost figure. If a procuring agency contracts for construction of a concrete structure, the agency may include the cost of the services (pouring) with the cost of the product (concrete) when calculating how much is spent on cement and concrete. Alternatively, the agency may devise a method of separating the cost of the concrete product from the cost of pouring and finishing.

3. Purchases made from another federal agency

Many federal agencies procure paper and paper products through GSA and the U.S. GPO. Although both of these agencies have their own APP, agencies that make purchases through GSA and GPO should still have their own APPs for the products they purchase. However, the agencies would need to request estimates and certifications from GSA and GPO, because these agencies will have already obtained this information in the initial purchases. Similarly, the verification requirement is also fulfilled by GSA and GPO.

In other words, GPO requests estimates and certifications from its vendors and contractors and verifies that the estimates and certifications are correct. It routinely supplies recycled paper whenever possible, even when not specifically requested by a procuring agency. Any order for printing on offset, writing, or newsprint stock, which is the bulk of the jobs, is automatically printed on recycled paper that meets the EPA's requirements (if the paper is available).

When GSA supplies products containing recovered content to other agencies, GSA has already obtained and verified estimates and certifications. Nonetheless, agencies are still responsible for monitoring purchases made through other agencies, such as GSA and GPO.

D. How Is Section 6002 Enforced?

Section 6002 of RCRA provides for the President's Office of Procurement Policy to implement its requirements. In addition, Section 7002 of RCRA authorizes citizens to sue in Federal district court to seek relief against any person alleged to be in violation of requirements of the Act, including RCRA Section 6002. The district court has jurisdiction to enforce the requirements.

Under RCRA Section 6002, federal grant administering agencies should inform state and local agency grant recipients about the requirements of RCRA Section 6002. The grant recipients, in turn, are considered to be "procuring agencies" when they are using appropriated Federal funds to purchase designated items and must purchase these items containing recovered materials to the maximum extent practicable. RCRA Section 6002 states that procuring agencies need not purchase recycled products if the products are not reasonably available, are only available at an unreasonable price, or do not meet reasonable performance standards. It is silent, however, regarding penalties for failure to purchase recycled products without these limitations. Therefore, each grant administering agency must determine the appropriate response when a grantee does not comply with RCRA Section 6002.

RCRA Section 7002 authorizes citizens to file a civil action in federal district court against any person alleged to be in violation of a requirement under RCRA. Therefore, a municipality that violates RCRA Section 6002 may be subject to suit.

Executive Order 12873 (the Executive Order) directs the Federal Environmental Executive (FEE) to take necessary actions to ensure that agencies comply with the provisions of the Executive Order. In addition, the Executive Order directs Agency Environmental Executives to track agency purchases of EPA-designated items and report these purchases to the Federal Environmental Executive. RCRA also requires the OFPP to submit biennial reports to Congress.

E. How Does RCRA Section 6002 Relate to Other Federal Procurement Regulations?

The purchase of recycled products under RCRA Section 6002 must be consistent with other federal procurement law, which requires that contracts be awarded to the lowest priced, responsive, responsible bidder.

Federal law does not currently authorize agencies to pay a premium price for recycled products. Agencies are using other means of purchasing recycled products that may be higher priced than virgin products, such as soliciting only for recycled products.

On August 22, 1997, the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council issued an interim rule amending the FAR parts 1, 10, 11, 13, 15, 23, 36, 42, and 52 to reflect the government's preference for the acquisition of environmentally sound and energy-efficient products and services and to establish an affirmative procurement program favoring items containing the maximum practicable content of recovered materials. See 62 FR 44809, August 22, 1997.

The Paperwork Reduction Act of 1995 (PRA) makes explicit the responsibilities of federal agencies with respect to the development of proposed collections of information and submission of these to OMB for review approval. Accordingly, federal procuring agencies should consult with their legal offices to determine whether their requirements for estimation and certification would require OMB clearance under the PRA.

F. Where Can Agencies Find Assistance or More Information?

EPA assists procuring agencies by investigating and identifying products that can be made with recovered materials. Based on this research, EPA conducts in-depth analyses of the feasibility of including the product in the federal government's procurement program. In addition, EPA, through its Recovered Materials Advisory Notices (RMAN), provides recommendations and guidance to procuring agencies in their efforts to comply with Section 6002 of RCRA.

For more information, agencies should contact the RCRA/Superfund Hotline at
800 424-9346 or 703 412-9810.

APPENDIX II

EXECUTIVE ORDER 12873

APPENDIX II

Executive Order 12873

The Executive Order entitled *Federal Acquisition, Recycling, and Waste Prevention*, was signed by President Clinton on October 20, 1993. Section 502 of the Executive Order establishes a 2-part process for the U.S. Environmental Protection Agency (EPA) to use when developing and issuing the procurement guidelines for products containing recovered materials. The first part, the CPG, designates items that are or can be made with recovered materials. As with previous procurement guidelines, the CPG is developed using formal notice-and-comment rulemaking procedures and is codified in 40 CFR Part 247. The Executive Order directs EPA to revise the CPG annually.

The second part of the 2-part procurement guidelines process, the RMAN, provides recommendations to procuring agencies on purchasing the items designated in the CPG. The Executive Order directs EPA to publish the RMAN in the *Federal Register* For public comments. Because the recommendations are guidance, the RMAN is not codified in the CFR. RMANs are issued periodically to reflect changes in market conditions or to provide procurement recommendations for newly designated items.

The Executive Order also directs EPA to provide guidance to Executive agencies on procuring environmentally preferable products. Section 503 directs EPA to develop and issue guiding principles for Executive agencies to use in purchasing environmentally preferable products. On September 29, 1995, EPA issued proposed guidance on how to incorporate the concept of waste prevention in purchasing decisions (see 60 F.R. 50722). The proposed guidance:

- Focuses on all types of acquisition, from supplies and services to buildings and systems.
- Establishes a general, umbrella guidance and requests Executive agencies to select voluntary pilot acquisitions or demonstration projects.
- Establishes a framework for issuing more detailed guidance on specific product categories that are related to current or future pilot acquisitions.
- Establishes a set of guiding principles.
- Outlines a number of steps for Executive agencies' short-run and medium-run implementation.

Section 401 directs Executive agencies to consider the use of recovered materials and other environmental factors in acquisition planning for all procurements and in the evaluation and award of contracts.

Section 402 directs the head of each Executive agency to implement the affirmative procurement program requirements of RCRA Section 6002(I) and to include a requirement that all purchases of EPA-designated items meet or exceed the EPA-recommended levels. It further directs agency affirmative procurement programs to encourage that (1) documents be transferred electronically, (2) all government documents printed internally be printed double-sided, and (3) contracts, grants, and cooperative agreements issued after October 20, 1993, include provisions that require documents to be printed double-sided on recycled paper that meets or exceeds the standards established in the Executive Order or in future RMANs. (See Appendix IV of this document for a detailed discussion of Affirmative Procurement Programs.)

Sections 501, 504, 505, and 506 of the Executive Order describe requirements for Executive agencies to incorporate the provisions of RCRA Section 6002(d)(1) and requires specific actions to be taken by certain agencies. Section 501 directs Executive agencies to review and, where applicable, revise their specifications, product descriptions, and standards to enhance federal procurement of products containing recovered materials. When agencies convert to Commercial Item Descriptions (CIDs), they are required to ensure that the CIDs meet or exceed the recovered materials requirements of the specifications or product descriptions that they replace.

Section 504 directs Executive agency heads to purchase uncoated printing and writing paper with a minimum of 20 percent postconsumer content beginning December 31, 1994. Section 505 further directs the GSA and other federal agencies to revise their paper specifications to eliminate barriers, unrelated to performance, to purchasing paper or paper products made by production processes that minimize emissions of harmful by products. On May 29, 1996, EPA published the final Paper Products RMAN in the *Federal Register* (61 F.R. 26985). The Paper Products RMAN incorporates Executive Order directives for uncoated printing and writing paper and updates EPA's 1988 recommendations for purchasing other types of paper.

Section 506 reinforces the procurement guidelines for re-refined oil and retread tires by directing commodity managers to finalize specification revisions for the products and to develop and issue specifications for tire retreading services. Once these specifications are finalized, commodity and fleet managers are directed to take affirmative steps to procure retread tires and re-refined oil.

Section 602 of the Executive Order directs Executive agencies to set goals for purchasing recycled and other environmentally preferable products and to maximize the number of recycled products purchased, relative to non-recycled alternatives.

Finally, Section 301 requires the FEE to submit an annual report to the Office of Management and Budget on the actions taken by agencies to comply with the requirements of the Executive Order, including the affirmative procurement program requirements set forth in RCRA Section 6002. To enable the FEE to develop this report, Executive agencies are required to provide information on their implementation actions. The most recent report, entitled "Report to the Office of Management and Budget: Executive Order 12873—Year Two Review," was released in October 1995.

APPENDIX III

ADDITIONAL POLICIES AND PROCEDURES

APPENDIX III

Additional Policies and Procedures

In addition to the requirements of RCRA Section 6002 and the Executive Order, several other federal policies and procedures may affect the procurement of products containing recovered materials. This appendix briefly summarizes requirements and policies set forth in the FAR, OFPP, Policy Letter 92-4, OMB Circulars A-102, A-119, and A-131, and the GSA's proposed Cooperative Purchasing Plan.

A. Federal Acquisition Regulation

The FAR is the primary regulation used by Executive agencies in their acquisition of supplies and services (48 CFR 1). FAR Part 23 sets forth requirements and procedures for federal agencies to use when procuring EPA-designated items. On, August 22, 1997, the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council issued a final rule amending FAR Parts 1, 10, 11, 13, 15, 23, 36, 42, and 52 to reflect the federal government's preference for the acquisition of environmentally sound and energy-efficient products and services and to incorporate the requirements of RCRA Section 6002 and Executive Order 12873 (see 62 FR 44809).

B. OFPP Policy Letter 92-4

OFPP's Policy Letter 92-4, "Procurement of Environmentally Sound and Energy-Efficient Products and Services" (57 F.R. 53362), establishes Executive branch policies for the acquisition and use of environmentally sound, energy-efficient products and services. In addition to reiterating the requirements of RCRA Section 6002, the Policy Letter requires Executive agencies to (1) identify and procure products and services that, all factors taken into consideration, are environmentally sound and energy-efficient, and (2) employ life cycle cost analysis to assist in making product and service selections.

C. OMB Circular A-102

On October 14, 1994, OMB published revisions to OMB Circular A-102, "Grants and Cooperative Agreements with State and Local Governments" (59 F.R. 52224). Paragraph 2(h) of the circular requires state and local government recipients of federal assistance funding to comply with RCRA Section 6002.

D. OMB Circular A-119

OMB Circular A-119, "Federal Participation in the Development and Use of Voluntary Standards" (54 F.R. 57645), sets forth policy for Executive agencies to follow in working with voluntary standards bodies and in adopting and using voluntary standards. Paragraph 7(a)(4) recommends that federal agencies give preference to adopting and using standards that "foster materials, products, systems, or practices that are environmentally sound and energy-efficient."

E. OMB Circular A-131

OMB Circular A-131, "Value Engineering" (58 F.R. 31056), requires Executive agencies to use value engineering as a management tool to reduce program and acquisition costs. Paragraph 8(b) requires agencies to develop guidelines for both in-house personnel and contractors to identify programs or projects with the most potential to yield savings from the application of value engineering techniques. Paragraph 3(b)(4) further requires this guidance to ensure that the application of value engineering to construction and other projects or programs includes consideration of environmentally sound and energy-efficient results.

F. Federal Acquisition Streamlining Act

1. Revisions to RCRA Section 6002 Estimation Requirements

RCRA Section 60029(c) requires vendors to estimate the percentage of recovered materials used in the performance of a contract. The Federal Acquisition Streamlining Act (FASA) (Pub. L. 103-355) amended this section of RCRA to require estimates only for contracts in amounts "greater than $100,000."

2. GSA's Cooperative Purchasing Plan

FASA Section 1555 authorized the GSA Administrator to provide its Federal Supply Schedules to any state or local government, Indian tribe, or the Commonwealth of Puerto Rico. The Federal Supply Schedule program provides federal agencies with simplified acquisition procedures and discounts for commonly used supplies and services. GSA published its proposed Cooperative Purchasing Plan on April 7, 1995 (60 F.R. 17764-17769). On February 10, 1996, President Clinton signed the Federal Acquisition Reform Act of 1995 (Pub. L. 104-106), which delayed the implementation of cooperative purchasing for at least 18 months from the date of signing. Accordingly, GSA action to implement Cooperative Purchasing is currently suspended.

APPENDIX IV

AFFIRMATIVE PROCUREMENT PROGRAM

APPENDIX IV

Affirmative Procurement Program

This appendix explains RCRA Section 6002 requirements for the establishment of affirmative procurement programs (APPs).

Within 1 year after EPA designates an item, RCRA Section 6002(i) requires each procuring agency purchasing more than $10,000 of that item, or functionally equivalent items in a fiscal year, to establish an APP for that item. Section 402 of Executive Order 12873 reinforces this requirement and further provides that Executive agencies "shall ensure that their APPs require that 100 percent of their purchases of products meet or exceed the EPA guideline standards," considering competition, price, availability, and performance.

An APP is an agency's strategy for maximizing its purchases of EPA-designated items. The APP should be developed in a manner that ensures that items composed of recovered materials are purchased to the maximum extent practicable consistent with federal procurement law. RCRA Section 6002(i) requires that, at a minimum, an APP consist of four elements: (1) a preference program; (2) a promotion program; (3) procedures for obtaining estimates and certifications of recovered materials content and, where appropriate, reasonably verifying those estimates and certifications; and (4) procedures for monitoring and annually reviewing the effectiveness of the APP. In addition, Section 402 of the Executive Order directs an agency APP to encourage the electronic transfer of documents, the double-sided printing of government documents, and the inclusion of provisions in contracts, grants, and cooperative agreements that require documents to be printed two-sided on recycled paper.

EPA recommends that the Environmental Executive within each major procuring agency take the lead in developing the agency's APP and in implementing the requirements set forth in the CPG. This recommendation is consistent with the basic responsibilities of an Agency Environmental Executive as described in sections 302 and 402 of the Executive Order. Section 302 charges each Agency Environmental Executive with coordinating all environmental programs in the areas of acquisition, standard and specification revision, facilities management, waste prevention, recycling, and logistics. Section 402(c) of the Executive Order further directs each Agency Environmental Executive to track and report, to the FEE, agency purchases of EPA-designated items. In the absence of such an individual, EPA recommends that the head of the implementing agency appoint an individual who will be responsible for ensuring the agency's compliance with RCRA Section 6002 and the Executive Order.

RCRA requires and the Executive Order directs procuring agencies to establish APPs for each item EPA designates. In fulfilling this requirement, EPA recommends that each agency develop a comprehensive APP with a structure that provides for the integration of new items as they are designated. An agency's comprehensive APP does not need to be limited to EPA designated items. In fact, EPA encourages agencies to implement preference programs that expand beyond the EPA designated items in order to maximize purchases of recycled products and foster additional markets for recovered materials.

EPA believes that developing a single APP will substantially reduce procuring agencies' administrative burdens under RCRA that result from EPA item designations. EPA also recommends that if a procuring agency does not purchase a specific designated item, it should simply include a statement in its preference program to that effect. Similarly, if a procuring agency is unable to obtain a particular item for one or more of the reasons cited in RCRA Section 6002(c)(1), a similar statement should be included in the preference program along with the appropriate justification. According to RCRA Section 6002(I)(2)(D), it is the procuring agency's responsibility to monitor and regularly update its APP. Should an item that was previously unobtainable become available, then the procuring agency should modify its APP accordingly.

A. Specifications

RCRA Section 6002(d)(1) requires federal agencies responsible for drafting and reviewing specifications for procurement items purchased by federal agencies to review and revise their specifications and remove requirements specifying virgin materials only or excluding the use of recovered materials. This revision process should have been completed by May 8, 1986. For items designated by EPA, Section 6002(d)(2) directs federal agencies to revise their specifications to require the use of recovered materials to the maximum extent possible without jeopardizing their intended end-use. Procuring agencies are required to complete their revisions within one year of an item's designation or publication of CPG revisions, as required by RCRA Section 6002(d)(2).

As discussed in Appendix II, sections 501, 504, 505, and 506 of Executive Order 12873 also address federal specification requirements. Section 501 directs Executive agencies to review and revise their specifications, product descriptions, and standards to enhance federal procurement of products containing recovered materials. When agencies convert to Commercial Item Descriptions (CIDs), they are required to ensure that the CIDs meet or exceed the recovered materials requirements in the specifications or product descriptions

they replace.

B. Preference Program

A preference program is the system by which an agency implements its stated "preference" for purchasing products containing recovered materials. RCRA Section 6002(I)(3) requires procuring agencies to consider the following options when implementing their preference programs: minimum content standards, case-by-case policy development, or a substantially equivalent alternative.

To assist procuring agencies in establishing their preference programs, when EPA designates an item, it examines these statutory options and recommends the approach it believes to be the most effective for purchasing the designated item. Procuring agencies may elect either to adopt EPA's recommended approach or to develop their own approaches, provided that, in accordance with Section 402 of the Executive Order, the selected approach meets or exceeds EPA's recommendations as described in the RMAN(s).

1. Minimum Content Standards

One approach that RCRA Section 6002(I)(3) requires procuring agencies to consider is establishing minimum content standards. RCRA Section 6002(I)(3)(B) further requires the procuring agency to ensure that its standard requires the maximum amount of recovered materials content available for the item, without jeopardizing its intended use.

To assist procuring agencies with establishing their minimum content standards, EPA's RMANs recommend recovered materials content levels, where appropriate, for most of the items it designates. Under RCRA Section 6002(I), it is the procuring agency's responsibility to establish minimum content standards, while EPA provides recommendations regarding the levels of recovered materials in the designated items. To make it clear that EPA does not establish minimum content standards for other agencies, EPA refers to its recommendations as "recovered materials content levels," consistent with RCRA Section 6002(e) and the Executive Order.

Whenever possible, EPA's recommendations are expressed as recovered materials content ranges within which the items are available. EPA recommends that procuring agencies use these ranges, in conjunction with their own research into the recovered materials content of items available to them, to establish their minimum content standards. In some instances, EPA recommends a specific level (e.g., 100 percent recovered materials), rather than a range, because the item is universally available at the recommended level.

Refer to Section III.A for more information on the methodology that EPA used to establish recovered materials content ranges for the items designated in CPG II.

2. Case-by-Case Policy Development

The second approach procuring agencies must consider is case-by-case policy development. RCRA Section 6002(I)(3)(A) describes case-by-case policy development as "a policy of awarding contracts to the vendor offering an item composed of the highest percentage of recovered materials practicable," subject to the limitations of RCRA Section 6002(c)(1)(A) through © (i.e., competition, price, availability, and performance). The case-by-case approach is appropriate where a procuring agency determines that the minimum content standard it has established for a particular designated item is not appropriate for a specific procurement action (i.e., the procuring agency is unable to acquire the item within the limitations described in RCRA Section 6002(c)(1)(A) through (C)). The case-by-case approach allows a procuring agency to specify different (usually lower) minimum content standards for specific procurement actions, while still ensuring that the agency fulfills its responsibility to procure the designated item containing the highest amount of recovered materials practicable.

This method does not obviate the need for agency minimum recovered materials content standards. It should be applied to singular procurement actions only when an agency's minimum content standard is unattainable. If a procuring agency determines that it is consistently unable to procure an EPA-designated item using the minimum content standard it establishes, the agency should evaluate its needs and adjust its content standard accordingly.

3. Substantially Equivalent Alternative

The third approach specified in RCRA Section 6002(I)(3) requires procuring agencies to consider a substantially equivalent alternative to minimum content standards and case-by-case policy development. For some items, the use of minimum content standards is inappropriate, because the product is remanufactured, reconditioned, or rebuilt (e.g., printer ribbon cartridges). In these instances, EPA recommends that procuring agencies use a substantially equivalent alternative. For example, in the case of printer ribbon cartridges, EPA recommends that procuring agencies establish a 2-pronged program consisting of 1) reinking or reloading expended printer ribbons/cartridges and 2) purchasing re-inked or reloaded printer ribbons/cartridges when new cartridges are needed. Minimum content standards are inapplicable, because the recovered material is the printer ribbon, rather than the individual components used to produce a new printer ribbon cartridge. However, in instances where the procuring agency is purchasing new ink printer ribbon cartridges made from recovered materials (e.g., plastic), a minimum content standard would be appropriate.

4. Requirements for Contractors

Government contractors also are subject to the requirements of RCRA Section 6002. These requirements are applicable where the contractor uses appropriated federal funds and purchases $10,000 worth of a designated item or purchased $10,000 or more of the item in the previous year. See Appendix I.A.2 for further clarification about the applicability of RCRA Section 6002 to government contractors.

5. Exceptions

A procuring agency may not always be able to purchase a designated item with recovered materials content. RCRA Section 6002(c)(1) allows a procuring agency the flexibility not to purchase an EPA-designated item with recovered materials content if any of the following conditions apply:

- The agency is unable to secure a satisfactory level of competition.
- The item is not reasonably available within a reasonable period of time.
- The item fails to meet the performance standards set forth in the agency's. specification.
- The item is available only at an unreasonable price.

Section 402 of Executive Order 12873 further directs that, if a procuring agency waives its requirement to purchase an EPA-designated item with recovered materials content, it must provide a written justification specifying one or more of the exceptions listed above.

Competition

EPA recommends that determinations of "satisfactory" competition be made in accordance with the procuring agency's procurement requirements.

Availability and Performance

Information on the economic and technological feasibility of producing each designated item, including the availability and number of manufacturers that produce the item, the ability of the item to meet federal or national specifications, the recovered materials content levels used by manufacturers to produce the item, and other information can be found in the item-specific discussions in subsection 3, "Rationale for Designation," of each item description discussion in sections VIII through XIII of this document.

Price

In previous guidelines, EPA defined an unreasonable price as a price that is greater than the price of a competing product made from virgin materials. EPA further interprets the reasonable price provision of RCRA Section 6002(c)(1)(C) to mean that there is no projected or observed long-term or average increases over the price of competing virgin items. This interpretation is supported in the preamble to OFPP Policy Letter 92-4 (57 F.R. 53364), which provides that there is no legal mandate to provide a price preference for products containing recovered materials over similar virgin products.

C. Promotion Program

RCRA Section 6002(I)(2)(B) requires each procuring agency to adopt a program to promote its preference to purchase EPA-designated items with recovered materials content. The promotion component of the APP educates staff and notifies an agency's current and potential vendors, suppliers, and contractors of the agency's intention to buy recycled products.

EPA believes that an agency's promotion program should consist of two components: an internal promotion program, targeted towards the agency's employees, and an external promotion program, targeted towards the agency's vendors and contractors.

1. Internal Promotion

Procuring agencies can use several methods to educate their employees about their APP. These methods include preparing and distributing agency affirmative procurement policies through in-house electronic mail and other media, publishing or posting articles in agency newsletters and on the Agency’s World Wide Web home page, including affirmative procurement program requirements in agency staff manuals, and conducting workshops and training sessions to educate employees about their responsibilities under agency affirmative procurement programs.

2. External Promotion

Methods for educating existing contractors and potential bidders of an agency's preference to purchase products containing recovered materials include publishing articles in appropriate trade publications, posting notices on the agency’s World Wide Web homepage, participating in vendor shows and trade fairs, placing statements in solicitations, and discussing an agency's APP at bidders' conferences.

D. Estimation, Certification, and Verification

RCRA Section 6002(2) requires the APP to include procedures for estimating, certifying, and, where appropriate, reasonably verifying the amount of recovered content materials used during performance of a contract. RCRA Section 6002(c)(3) further provides "the contracting officer shall require that vendors, (A) certify that the percentage of recovered materials to be used in the performance of the contract will be at least the amount required by applicable specifications or other contractual requirements and (B) estimate the percentage of the total material utilized for the performance of the contract, which is recovered materials." The Federal Acquisition Streamlining Act (Pub. L. 103-355) amended this section of RCRA to require estimates only for contracts in amounts greater than $100,000.

E. Procedures to Monitor and Review the Procurement Program

Procuring agencies should monitor their APP to ensure that they are fulfilling their requirement to purchase items composed of recovered materials to the maximum extent practicable. RCRA Section 6002(I)(2)(D) requires the APP to include procedures for monitoring and annually reviewing the effectiveness of an agency's APP. RCRA Section 6002(g) requires the Office of Federal Procurement Policy (OFPP) to submit a report to Congress every 2 years on actions taken by Federal agencies to implement the affirmative procurement requirements of the statute. Section 402 of Executive Order 12873 directs each agency's Environmental Executive to track and report on agency purchases of EPA-designated items. Section 301 directs the FEE to submit a report annually, at the time of agency budget submission, to the OMB on Executive agency compliance with the Executive Order. In order to fulfill their responsibilities, the FEE and OFPP request information from appropriate agencies on their affirmative procurement practices. It is important, therefore, for agencies to monitor

their APP to ensure compliance with RCRA Section 6002 and Executive Order 12873.

In order to comply with the Executive Order, agencies will need to evaluate their purchases of products made with recovered materials content. This also will allow them to establish benchmarks from which progress can be assessed. To evaluate their procurements of products containing recovered materials, procuring agencies may choose to collect data on the following:

- The percentages of recovered materials content in the items procured or offered
- Comparative price information on competitive procurements
- The quantity of each item procured over a fiscal year
- The availability of each item with recovered materials content
- Performance information related to the recovered materials content of an item

EPA recognizes that a procuring agency may be unable to obtain accurate data for all designated items but believes that estimates will be sufficient to determine the overall effectiveness of an agency's APP.

APPENDIX V

MATERIALS IN SOLID WASTE

APPENDIX V

Materials in Solid Waste

RCRA Section 6002 provides criteria for EPA to consider when selecting items for designation. One of these criteria is the impact of procurement on the solid waste stream. EPA's designation of an item should promote the statute's underlying objective of using government procurement to foster markets for items containing materials recovered from solid waste. Consistent with this objective, each of the items that EPA proposes to designate is made with one or more materials recovered from solid waste. This appendix briefly discusses solid waste stream materials and provides a more detailed discussion of the materials used in the products designated in the CPG II.

A. General Overview of Materials in Solid Waste

Generally, solid waste has several components, such as MSW, C&D debris, and non-hazardous industrial waste. Under RCRA Section 6002, EPA considers materials recovered from any component of the solid waste stream when designating items containing recovered materials.

EPA publishes annual characterization reports of the generation and recovery of MSW in the United States. EPA's latest MSW characterization study, which presents 1995 waste generation and recovery data, addresses the following materials: paper and paperboard, glass, metals, plastic, rubber and leather, textiles, wood, food wastes, yard trimmings, miscellaneous inorganic wastes, and other materials. Table 1 shows the 1995 generation and recovery of these materials.

Table 1

Materials Generation and Recovery in the U.S. Municipal Waste Stream, 1995
(In Millions of Tons)

Materials	Generation	Recovery
Paper and Paperboard	81.5	32.6
Glass	12.8	3.1
Metals	15.8	6.2
Ferrous	11.6	4.2
Aluminum	3.0	1.0
Other Nonferrous	1.3	0.9
Plastic	19.0	1.0
Polyethylene Terephthalate (PET)	1.7	0.4
High Density Polyethylene (HDPE)	3.5	0.4
Polyvinyl Chloride (PVC)	1.5	Negligible
Low Density Polyethylene (LDPE)/ Linear Low Density Polyethylene (LLDPE)	5.1	0.1
Polypropylene (PP)	2.9	0.1
Polystyrene (PS)	2.3	Negligible
Other resins	2.0	Negligible
Rubber and Leather	6.0	0.5
Rubber from tires	3.0	0.5
Textiles	7.4	0.9
Wood	14.9	1.4
Other	3.6	0.8
Food Wastes	14.0	0.6
Yard Trimmings	29.8	9.0
Miscellaneous Inorganic Wastes	3.2	Negligible
TOTAL MSW	208.0	56.2

Source: "Characterization of Municipal Solid Waste in The United States: 1996 Update," U.S. EPA, April 1997.

B. Materials Used in Items Proposed for Designation

Table 2 identifies the recovered materials that are or can be used in the items designated in the CPG II.

Table 2

Recovered Materials Used in Items Designated in CPG II

Recovered Material	Designated Items
Plastic	• Shower and restroom dividers • Parking stops • Channelizers • Delineators • Flexible delineators • Plastic fencing • Garden and soaker hoses • Lawn and garden edging • Printer ribbons (cartridges) • Plastic envelopes • Pallets
Wood	• Pallets
Rubber	• Parking stops • Channelizers • Delineators • Flexible delineators • Garden and soaker hoses • Lawn and garden edging
Blast Furnace Slag (GGBF)	• Parking stops
Coal Fly Ash	• Parking stops
Leftover Latex Paint	• Latex Paint
Old Corrugated Containers	• Pallets
Steel	• Shower and restroom dividers • Channelizers • Delineators • Flexible delineators

1. Plastics

Plastics in the waste stream include non-durable goods such as consumer packaging, containers, toys, and housewares; durable goods such as furniture, appliances, and computers; and commercial/industrial goods such as pipe, cable, siding, and auto parts. Plastic makes up 9 percent of MSW according to EPA's 1995 characterization study and was recovered at an overall rate of 5 percent.

The American Plastics Council (APC) reported that the 1995 recycling rate for postconsumer plastic bottles and rigid containers was nearly 18 percent; for other types of plastic packaging, the recycling rate was 2 percent. According to APC, the most commonly recycled postconsumer products are PET soft drink bottles, with a 41 percent recycling rate, and HDPE milk and water jugs, with a 26 percent recycling rate.

PET has the highest recycling rate of all postconsumer resins. APC reported a 27 percent overall recycling rate (579 million pounds) for postconsumer PET. This rate reflects the high recycling rate for PET soft drink bottles, which are the most widely recycled plastic product. Other PET bottles (e.g., peanut butter jars and cooking oil bottles), packaging, and non-packaging materials (e.g., x-ray film) are recycled at much lower rates. Currently, the primary market for postconsumer PET is fiber for use in products such as ski jackets, sleeping bags, and carpet. Other markets for postconsumer PET include soft drink bottles and household product containers.

According to APC, HDPE had the second highest postconsumer resin recycling rate in 1995 at 13 percent and 552 million pounds recycled. The primary supply of postconsumer HDPE is recycled milk and water jugs, detergent bottles, and other household products bottles. The availability of postconsumer HDPE is expected to increase as more communities include HDPE products in their recycling collection programs and as improvements in recovered plastic processing are implemented.

Other postconsumer resins were recycled at much lower overall rates. Polypropylene (PP) is recycled at a rate of nearly 2 percent, LDPE/LLDPE at 3 percent and polystyrene (PS) at 5.7 percent. All other resins, including polyvinyl chloride (PVC), are recycled at negligible rates.

Technical and economic barriers prevent the increased processing and use of recovered plastic. For example, the various plastic resins are not mutually compatible, requiring that they be separated during processing. As a result, the price of most recovered resins is not competitive with virgin resin, which decreases industry incentives to use them as a raw material. Thus, many communities are discouraged from including plastic in their collection programs. The development of higher value end-markets for the plastic that is currently being collected may off set the costs of processing the recovered plastic and encourage more communities to recover plastic from the waste stream, thereby increasing the supply of recovered resins, and making the cost of recovered resin more equitable with that of virgin resin.

2. Wood

EPA estimates that approximately 14.9 million tons of wood were generated as MSW in 1995, of which only 9.4 percent (1.4 million tons) was recovered. The sources of wood include furniture, miscellaneous durables, wood packaging (including pallets), and other miscellaneous products.

3. Rubber

The predominant source of rubber in MSW is discarded tires. Approximately 800 to 850 million scrap tires are currently stockpiled across the United States, and over 260 million more are generated annually. Improperly operated stockpiles can create serious health and environmental threats from fires and insect- or rodent-borne diseases. Most states now have scrap tire management legislation fostering alternatives to tire stockpiling and disposal. One of these alternatives is tire retreading, and retreads are already designated in the CPG. Another alternative is to use crumb rubber, either alone or mixed with plastic, to produce new products.. Several of the items designated in CPG II (e.g., lawn and garden edging, garden hoses, and soaker hoses) contain recovered crumb rubber from tires.

Crumb rubber, a fine granular or powdered material capable of being used to make a variety of products, is recovered from scrap tires using thermal and/or mechanical processing techniques. Crumb rubber also is derived from the tire retreading process, when worn tire tread is removed during a buffing process before the new tread is affixed. Rubber materials derived from this process are frequently referred to as "buffings" or "buffing dust." Approximately 200 million pounds of tire buffings are generated each year by the tire retreading industry in the United States.

4. Blast Furnace Slag

Iron blast furnace slag, or GGBF slag, is a by product of blast furnace iron production. GGBF slag is produced when water is used to rapidly cool molten blast-furnace slag. According to the U.S. Geological Survey, approximately 13.8 million metric tons are generated annually.

GGBF slag can be used in cement and concrete for a variety of applications. Approximately 85 percent of GGBF slag is used in aggregate applications such as fill, road bases, and the coarse aggregate component of asphalt and concrete, while the remaining 15 percent (2 million tons) is stockpiled or used for other purposes.

5. Coal Fly Ash

Coal fly ash is the term used to describe a finely divided mineral residue that results from coal combustion. The vast majority of coal fly ash is produced in electric power generating plants, where powdered coal is burned to produce steam to drive the turbines. It passes out of the boiler along with the stack gases and is removed from the gases by various means, including electrostatic precipitators, mechanical precipitators, cyclone separators, bag houses, and scrubbers. Coal fly ash is stored in silos to await reuse or disposal, or it may be conveyed directly to a disposal area. Coal fly ash typically represents about 75 percent of the ash generated by coal combustion, with coarser and heavier bottom ash accounting for the remaining 25 percent.

The American Coal Ash Association estimates that 54.2 million tons of coal fly ash were generated in 1995. Approximately 25 percent of this material (13.6 million tons) was recovered and the remaining 40.6 million tons were stored or disposed of.

6. Latex Paint

According to data from the U.S. Census Bureau, about 1.35 billion gallons of paint and allied products were shipped from paint manufacturers in 1996 (for architectural coatings, product coatings, marine and, other specialty coatings), of which 750 million gallons were architectural coatings of all types. It is unclear exactly how much of this paint is disposed of in the municipal waste stream, although EPA believes the amount to be significant.

In 1993, Marin County, California, held a 6 month pilot program with curbside collection program, which included latex paint. The pilot program had a 23 percent participation rate and collected an average of 1.05 gallons of latex paint per pickup.[1]

According to a 1993 National Paint and Coatings Association (NPCA) estimate, approximately 1 gallon of paint per year is discarded by the average household.[2] A 1995 survey commissioned by NPCA, however, estimated that an average of 0.375 gallons of paint per household will no longer be used.[3] Even at the lower rate, the 97 million households in the United States are estimated to generate over 36 million gallons of leftover paint (of all types).

7. Old Corrugated Containers

Paper and paperboard, including old corrugated containers, are major components of MSW. In 1995, over 81 million tons of waste paper, or 39 percent of total MSW, were generated. A significant portion of paper is recovered and used in the manufacture of new paper and paperboard products. According to the American Forest & Paper Association (AF&PA), recovered paper now supplies approximately 35 percent of all fiber used in U.S. paper mills. Of the 43.3 million tons of paper and paperboard recovered in the United States in 1995, about 32 million tons were used to make recycled paper and paperboard products.

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[1]Curbside Collection and Recycling of Latex Paint and Used Motor Oil, Final Report to the California Integrated Waste Management Board, prepared by Marin County Office of Waste Management, June 1993.

[2]National Paint and Coatings Association, "Post-Consumer Paint Management Manual," 1993.

[3]National Paint and Coatings Association, "Post-Consumer Paint Management Manual, (Second Edition)," 1995.

In 1995, according to AF&PA, 20.7 million tons of old corrugated containers (OCC)[4] were recovered, representing a 70 percent recovery rate. The paper industry projects that much of the growth in use of recovered paper will be in containerboard (corrugated medium and linerboard), a paperboard grade made from OCC.

8. Steel

EPA's 1995 waste characterization study reports that ferrous metals (steel and iron) represent approximately 11.6 percent of MSW. According to the Steel Recycling Institute, over 67 million tons of steel were recovered from the waste stream in 1996, representing a steel recycling rate of approximately 65 percent. The recovered steel includes 16.3 million tons of steel recovered from nearly 12 million automobiles; 19 billion steel cans and containers; and 45 million appliances. The Steel Recycling Institute estimates that every ton of recycled steel saves 2,500 pounds of iron ore, 1,400 pounds of coal, and 120 pounds of limestone.

[4]AF&PA includes old corrugated containers, container plant cuttings, and kraft bags in its definition of OCC.